

This report has been cleared for submission to the Board by the Programme Manager Frank Clinton.

Signed Debra Date 21/7/10



**DEPARTMENT OF CLIMATE,
LICENSING &
RESOURCES**

INSPECTORS REPORT ON A LICENCE REVIEW

TO:	DIRECTORS	Open web Doc LV1
FROM:	Michael Owens assisted by Caroline Murphy	Initials: <u>MO</u> Licensing Unit
DATE:	06 July 2010	
RE:	EPA-initiated review of a waste licence for Cork County Council – Bottlehill, Toreen South, Coom (Hudson), Coom (Fitzgerald), Glashaboy North, Bottlehill, County Cork. Licence Register No. W0161-02.	

Type of facility:	Landfill
Class(es) of Activity:	4 th Schedule: Class 4 3 rd Schedule: Class 4, 5 & 13
Quantity of waste managed per annum:	189,000 tonnes increasing to 217,000 tonnes per annum
Classes of Waste:	Household, commercial, industrial and street cleaning.
Location of facility:	Bottlehill, Toreen South, Coom (Hudson), Coom (Fitzgerald), Glashaboy North, Bottlehill, County Cork
Licence review initiated:	23 rd December 2009
Third Party submissions:	John O’Riordan & Bottlehill Environmental Alliance, 01 st February 2010. Submitted on their behalf by Noonan Linehan Carrol Coffey Solicitors.
Licensee submission:	1 st February 2010.
Article 16(3)(a)(i) Notification	Not applicable
Article 16(3)(a)(i) Reply	Not applicable
EIS Required:	No
New or existing facility (i.e. operational pre- or post-16 July 2001)	Existing
Site Inspection	No site inspection was carried out for this review.

On the 23rd December 2009, the Environmental Protection Agency initiated a review of the waste licence relating to Bottlehill Landfill, Waste Licence Register Number W0161-01. The review was initiated by writing to the licensee and placing a newspaper notice in the Irish Independent. The reasons for initiating the review are as follows:

- Section 46(2)(b) of the Waste Management Acts, 1996 to 2010, requires that the EPA review a waste licence if “new requirements (whether in the form of standards or otherwise) are prescribed, by or under any enactment or Community act, being requirements that relate to the conduct or control of the activity to which the waste licence relates.” In this case, there is a need to further elaborate and give effect to articles 5 and 6 of Council Directive 1999/31/EC on the landfill of waste (the Landfill Directive) regarding the treatment of waste prior to landfill and diversion of biodegradable municipal waste from landfill.
- There is also a need to further the general Best Available Techniques (BAT) obligation to reduce the overall environmental impact of landfill. In this context, there are newly elaborated limits on the acceptance of biodegradable municipal waste at landfill (expressed in the document *Municipal Solid Waste – Pre-treatment and Residuals Management: An EPA Technical Guidance Document* published 19 June 2009) that have regard to the need to implement and achieve landfill diversion targets set out in the Landfill Directive. The diversion of biodegradable municipal waste will, *inter alia*, reduce landfill gas production and have consequent benefits regarding greenhouse gas emissions and the potential for odour nuisance.
- The EPA will also (a) determine whether new conditions on odour prevention and control should be proposed, (b) amend, replace or delete a number of other conditions where this is appropriate and (c) propose new conditions where these are deemed necessary.

The conditions limiting the acceptance of biodegradable municipal waste will contribute to implementation of the National Strategy on Biodegradable Waste (Department of the Environment, Heritage and Local Government, 2006).

The principal new/updated conditions relate to the following:

1. The imposition of new limits on the amount of biodegradable municipal waste that can be accepted at the facility (condition 1.6.2). From 1 January 2010, only 47% of municipal waste accepted at the facility for landfilling can be biodegradable. In 2013 this reduces to 30% and in 2016 to 15%. The benefits of this restriction include a reduction in landfill gas generation and hence odour nuisance potential and reduced leachate generation.
2. The requirement to treat all waste prior to acceptance for disposal (condition 1.6.1).
3. The need to measure waste intake and report compliance with the conditions described in items 1 and 2 above (condition 11.9).
4. Condition 5.6.2 prohibits the use of bio-stabilised residual waste¹ as daily cover unless the material has been stabilised in accordance with condition

¹ Defined in the PD.

1.7.4 of the licence and satisfies Department of Agriculture, Fisheries and Food requirements in relation to the treatment of animal by-products, recently articulated in DAFF guidance¹. Material not meeting these requirements must be disposed of in the landfill body³.

5. The need to ensure that all potential environmental liabilities are addressed (condition 12.2).

Compliance with Directives/Regulations

Error! Not a valid bookmark self-reference. sets out new and amended conditions that, subject to compliance with those conditions, will ensure that the facility operates in conformance with the provisions of the Landfill Directive (1999/31/EC) and will improve the overall environmental protection afforded by the licence.

Table 1 List of new or amended conditions

Interpretation		✓	To update with new definitions and change to refer to Waste Management Acts, 1996 to 2010.
1.3	✓		Amend condition to refer to Waste Management Acts, 1996 to 2010.
1.5.3	✓		Amend condition to remove reference to baled waste.
1.5.4		✓	To prohibit the acceptance of explosive, corrosive, oxidising or flammable material to the landfill.
1.5.5		✓	To prohibit the acceptance of bulk gypsum waste at any landfill cell accepting biodegradable waste.
1.5.6		✓	Prohibit the dilution or mixture of waste in order to fulfil waste acceptance requirements.
1.6.1		✓	Only pre-treated wastes permitted at landfill.
1.6.2		✓	Applies limits on the acceptance of BMW.
1.6.3		✓	Permits two or more licensed landfills to fulfil, in combination, the requirements of Condition 1.6.2.
1.7		✓	Determines the BMW content of the accepted waste.
2.3.2.1		✓	Revised requirements, regarding Schedule of Environmental Objectives and Targets.
2.3.2.2		✓	Requires Landfill Environmental Management Plan (LEMP).
2.4.1	✓		Rewording of the condition to maintain the communications programme as it has already been established.
3.10.1	✓		Rewording of the condition to clearly set out that the onsite wastewater treatment plant cannot be

¹ Conditions for approval and operation of composting plants treating animal by-products in Ireland, 27 March 2009, Department of Agriculture, Fisheries and Food, Animal By-Products Section.

³ Conditions for approval and operation of biogas plants treating animal by-products in Ireland, 27 March 2009, Department of Agriculture, Fisheries and Food, Animal By-Products Section.

			used to treat leachate.
3.11.1	✓		Reference added to bund design guidance.
3.12	✓	✓	Amends condition to include new requirements regarding landfill liner.
3.15	✓		Updates requirements for installation of landfill gas infrastructure and management of landfill gas flare(s).
4.1		✓	Updates requirements regarding restoration of facility
4.2	✓	✓	Updates requirements regarding landscaping and final profile levels.
4.3	✓		Updates requirements setting out that alternative technical specifications for final capping of landfill can be utilised at the site with the agreement of the Agency.
4.4		✓	Sets out new requirements regarding submission of Closure, Restoration, Aftercare and Management Plan (CRAMP).
4.5		✓	Sets out new requirements regarding nature of Closure, Restoration, Aftercare and Management Plan (CRAMP).
5.3		✓	Update requirement for waste acceptance procedures.
5.4		✓	Permits temporary storage in waste quarantine areas.
5.5.1(a)	✓		Removes requirement to dispose of baled waste only but includes an additional reference to disposal of residual waste only.
5.5.1(b)		✓	Sets out new requirements for dimensions of landfill working face.
5.5.1(c)		✓	Sets out a requirement to compact deposited waste using steel wheeled compactors.
5.6.2		✓	Only bio-stabilised residual waste may be used as landfill cover.
5.10.8		✓	Sets out a requirement to examine the feasibility of providing on-site treatment of leachate.
5.12	✓		Updated to include reference to the National Parks and Wildlife Service.
6.4.3	✓		Timeframe for the submission of the proposal for the monitoring of water entering surface water retention lagoons.
7.3	✓	✓	Updates requirements regarding management of litter.
7.6	✓		Wording amended for better understanding and includes reference to the National Parks and Wildlife Service.

7.8		✓	Sets out requirements for odour control and monitoring, including a requirement to develop an Odour Management Plan.
8.8.1	✓		Updates the condition to require an annual topographical survey.
8.9.1	✓		Updates the requirement for a biennial biological assessment of surface water quality.
8.10.1	✓		Updates the requirement for an annual ecological assessment of the entire site and to include reference to the National Parks and Wildlife Service.
8.12.1	✓		Requirement to carry out slope stability assessments annually after the commencement of waste acceptance at the facility.
8.14	✓		The data management system has been established; therefore, the condition has been updated to state that this system needs to be maintained.
8.15	✓		As the groundwater monitoring programme has been set-up this condition was altered to require on-going annual monitoring.
8.16	✓		Updates the requirement for use of standard methods for waste acceptance testing.
9.2	✓		Amends wording to require an annual review of the Emergency Response Procedure.
9.5		✓	Sets a requirement to develop and maintain a Accident Prevention Policy.
10.2	✓		Updates requirements regarding recording of waste shipments.
11.3		✓	Sets requirements regarding waste recovery reporting
11.6.1	✓		Updates requirements regarding submission of the Annual Environmental Report.
11.7		✓	Requirement to provide written acknowledgement of receipt of each delivery of waste to the facility.
11.8		✓	Requirement to notify the Agency of receipt of waste that does not meet waste acceptance criteria.
11.9		✓	Requirements for reporting to demonstrate compliance with diversion targets.
12.1.1	✓		Updates requirements regarding financial charges.
12.2	✓	✓	Environmental Liabilities Risk Assessment – update of existing condition and supplementary new conditions.
12.3		✓	Requirement that landfill costs be covered by disposal charges and amendment of text to refer to Waste Management Acts, 1996 to 2010.
Schedule A, Table A.1.3		✓	Total permitted landfill capacity by volume.

Schedule C, Schedule C.5	✓		Amends wording to include to 'flare(s)' rather than 'flare'.
Schedule D, Table D.1 – Column labelled 'Landfill Gas Flare'	✓		Updated to facilitate use of multiple landfill gas flares onsite, where required.
Schedule D, Table D.1 Note 1(a)	✓		Amends text of note to include monitoring location reference numbers for landfill gas flares.
Schedule D, Table D.1 Note 10	✓		No other groundwater monitoring locations have been agreed with the Agency under Condition 8.15; therefore, Note 10 is amended to state " <i>other locations as agreed with the Agency</i> ".
Schedule D, Table D.2	✓		Amends wording to include to 'Flare(s)' rather than 'Flare'.
Schedule D, Table D.7		✓	Waste monitoring
Schedule D, Table D.8		✓	Ambient odour monitoring
Schedule E	✓		Updates requirements with regard to recording and reporting to the Agency
Schedule F, Table F.1		✓	Addition of 'Note 1' to Table F.1 requiring the agreement of the Agency for the continued use of certain wastes (solid road planings, solid tarmacadam, solid asphalt) for recovery at the facility.
Schedule G	✓	✓	Updated requirements with regard to the Annual Environmental Report including removal of all specific references to baled waste in the Schedule of Environmental Objectives and Targets.

Other Proposed Changes to the Licence

It is proposed to remove Condition 5.9.2 on the acceptance of asbestos waste at the facility from the RD on the basis that asbestos cannot be accepted under the existing licence condition and that no request was made to amend it.

Submissions

First Party Submission

As the EPA initiated this review, the licensee (Cork County Council) was entitled to make a submission. A detailed submission was received and the following items are addressed within:

A. Biodegradable Waste Diversion Targets

Regarding the application of binding landfill waste acceptance limits for biodegradable waste, the licensee is of the opinion that:

1. It is 'inequitable' as it does not take account of the measures taken within the Cork Region to reduce municipal waste, including the biodegradable fraction, being sent to landfill.
2. It disregards the two core principles of European Waste Strategy, namely the Polluter Pays Principle and the Producer Responsibility Principle, both of which seek to ensure that the responsibility and costs of waste generation are borne by those who generate the waste.
3. It fails to take account of each region's respective annual contribution to:
 - (i) The national total of landfilled BMW and the respective contributions, by each Region, to the national total.
 - (ii) The measures taken by each region to reduce MSW arisings.

With regard to the measures taken by each region to reduce MSW arisings, evidence is provided in the submission of particular efforts and gains made by Cork County Council by way of the various regulatory and awareness-raising schemes, implemented under Cork County's series of Waste Management Plans, and as described in their submission on the review. It is considered by the licensee that the methodology used in the calculation of the targets and their allocation to landfill places a disproportionate burden on the licensee.

Response:

Notwithstanding any progress being made by Cork County Council to reduce the amounts of municipal and biodegradable waste being sent to landfill, it remains a fact that the landfill directive applies to all landfills and the restriction on the acceptance of biodegradable municipal waste therefore applies ultimately to all landfills. Consequently, the EPA is applying the relevant conditions to all landfill licences. Therefore, it is not considered inequitable to impose acceptance limits for BMW at this landfill gate. As pointed out above, the conditions limiting the acceptance of biodegradable municipal waste will contribute to implementation of the National Strategy on Biodegradable Waste (Department of the Environment, Heritage and Local Government, 2006), with the benefits of this restriction including a reduction in landfill gas generation, odour nuisance potential and leachate generation.

B. Monitoring Requirements

With regard to the monitoring requirements for testing bio-stabilised residual waste at the landfill, the licensee refers, by way of illustration, to the requirements of the relevant Condition and Schedule in the recently revised licence for Youghal landfill (W0068-03) and also to the EPA's '*Draft Protocol for the Evaluation of Biodegradable Municipal Waste sent to Landfill by Pretreatment Facilities*'. The licensee argues that such a monitoring regime, should it be applied to the landfill at Bottlehill, would place a significant sampling and testing burden on the landfill operator, which would be over and above the requirements of Annex II of the Landfill Directive (1999/31/EC).

Response:

It is not accepted that the testing of every 500 tonnes of biostabilised residual waste (as proposed in condition 1.7.5 and schedule D.7 of the RD) is a significant sampling and testing burden. It should be noted that this does not refer to the testing of all biodegradable waste accepted for disposal at the landfill. The Draft Protocol refers to methods of determining the quantity of biodegradable municipal waste land filled and this is required to assist in demonstrating compliance with BMW diversion targets as now required by EPA landfill licences.

C. Licence Conditions Related to Baling of Waste

There are a number of conditions in the current licence regarding acceptance and landfilling of baled waste. The licensee is seeking the removal of the requirement to receive predominantly baled waste at the facility by way of removal of reference to baled waste in the relevant licence conditions. The licensee argues that the baling of waste prior to landfill is no longer best practice in terms of landfill operation and it is their opinion that the option to accept baled or unbaled waste should be at the discretion of the facility operator.

To support its case in the matter, the licensee provided a detailed review of various documents from the licence application, oral hearing and the licence itself. The licensee reviewed all references to baled waste in these documents and discussed matters such as waste haulage and delivery to the facility, provision and use of infrastructure, dimensions of landfill working face and control of nuisance.

Response:

There is nothing, in my opinion, flawed in the arguments offered by the licensee in its review of these documents.

Before assessing the licensee's submission I carried out an examination of a number of relevant technical documents to ascertain whether the acceptance of unbaled waste, rather than baled waste, at a landfill would result in greater risk to the environment. The following documents were reviewed:

- Investigations for Landfills (EPA, 1995)
- Landfill Operational Practice (EPA, 1997)
- Landfill Restoration and Aftercare (EPA, 1999)
- Landfill Site Design (EPA, 2000)
- Landfill Monitoring (EPA, 2003)
- Current EPA BAT Guidance Note for the Waste Sector: Landfill Activities (EPA, 2003)
- Groundwater Protection Responses for Landfills (EPA, 2006)
- Protection of Groundwater when siting Landfills (EPA, 2006)
- Municipal Solid Waste: Pretreatment and Residuals Management - an EPA Technical Guidance Document (EPA, 2009)
- New draft EPA BAT Guidance Note on Waste Landfill (circulated for consultation in 2009)
- IPPC Reference Document on BAT for the Waste Treatment Industries (European Commission, 2006)
- EU Landfill Directive (1999/31/EC)

Overall, there is no indication in any of the above documents that there is an additional environmental risk posed by the deposition of unbaled waste over that of baled waste. In many cases, the matter of baled or unbaled waste does not arise at all in the document.

The licensee's submission deals with a large number of technical questions addressing the management of unbaled waste at the landfill, as opposed to predominantly baled waste. The technical issues are assessed here in no particular order of importance. Reference will be made as appropriate to relevant historic documents regarding this licence, namely,

- The original waste licence application submitted in 2001
- The Environmental Impact Statement (EIS)
- The inspector's report considered by the Board of the EPA
- The oral hearing report

Where any of these documents deals with the question in hand, it will be discussed. If these documents do not deal substantively with the question in hand, this will be stated. The objective is to ensure that full coverage is given to any commitments made by the licensee or the EPA in the licensing process that would indicate relative advantage of one form of waste presentation (i.e. baled or unbaled) over another.

a) Site Infrastructure and Engineering

The engineering of the landfill cells has been carried out as required by the EU Landfill Directive. The acceptance of unbaled waste at the facility will have no impact on the nature, provision or use of site infrastructure.

The Non-Technical Summary of the EIS and the original inspector's report both touch on the matter but do not provide any indication that the acceptance of unbaled waste would affect site infrastructure. I can find no additional critical information in any of the other historical documents related to this matter.

b) Waste Amounts and Transport

The EIS examined traffic movements to the site and referred specifically to the projected numbers of deliveries of baled and unbaled waste. It was originally envisaged in the application that unbaled waste would be delivered to the facility in 15 tonne loads with baled waste being delivered in 20 tonne loads. There is local concern that, if all waste arrives in unbaled form, there will be an increase in delivery traffic to the site.

The licensee submits that contemporary waste management practices for unbaled waste, such as bulking up of unbaled waste at transfer stations and the use of larger capacity transport vehicles, now effectively eliminates that advantage previously provided by movement of baled waste only. To that effect, the licensee proposes that the use of 23 tonne loads to deliver unbaled waste will in fact reduce the number of predicted vehicle trips to the site.

A number of questions were raised at the oral hearing as to whether or not the original application and EIS had clearly set out the relative proportions of baled and unbaled waste to be accepted at the facility given the local understanding at the time of application that almost all waste was to arrive in baled form from the Materials Recovery Facility (MRF) and that only minor amounts of waste would be in unbaled form. It was during the oral hearing that figures emerged regarding the intention at the time to accept 40% unbaled waste and 60% baled waste at the facility.

The oral hearing did therefore consider the matter of acceptance of a significant proportion of unbaled waste. In addition, as the landfill facility already has the capability to accept unbaled waste, the measures and controls already in place in the

current licence to manage acceptance and deposition of unbaled waste will continue to apply by way of the full suite of controls in the RD.

It is my view that the acceptance of waste in unbaled form will have no bearing on the projected amounts of waste that will eventually be consigned to the facility nor will it lead to a greater number of waste deliveries over the lifetime of the facility. I can find no additional critical information in any of the other historical documents related to this matter.

c) Waste Acceptance Procedures

Reference is made in the EIS to the development of procedures to manage acceptance and deposition of baled waste which would address matters such as use of closed containers for waste delivery and waste inspections.

As per condition 7.3.6 of the RD, waste will be accepted at the site only in fully covered containers. Condition 5.3 of the RD sets out updated requirements for the development of waste acceptance procedures which will address the acceptance of unbaled waste at the facility and will require the prior agreement of the Agency before implementation. Conditions 5.3 and 5.4 require inspection of all waste shipments, both at the point of arrival at the facility and at the point of deposition at the working face. The acceptance of waste in predominantly unbaled form will have no impact on these requirements. I can find no critical information in any of the other historical documents related to this matter.

d) Landfill Liner

It was proposed in the EIS that two bales of waste would be placed on top of the drainage layer in the landfill cells so as to provide some additional protection to the liner underneath from potential damage or puncture by unbaled waste materials.

According to Mr Caoimhin Nolan, the OEE inspector for the facility, it is in fact the movement of onsite vehicles that represents the greatest risk to the landfill liner and consequently, it is common practice to place an initial layer of waste at the bottom of each cell upon which site vehicles can then safely operate. The licensee is proposing that the first layer of waste overlying the drainage medium will be laid at thickness of 1 to 2m to provide a protective layer for the lining system. I can find no additional critical information in any of the other historical documents related to this matter.

e) Landfill Working Face

It is contended by the licensee that with effective waste compaction and daily cover of unbaled waste, an equally structured working face as would be established with baled waste can be achieved.

This position is accepted. Unlike baled waste, the landfilling of unbaled waste will not result in the creation of a near vertical working face. The application of daily cover to the compacted unbaled waste is more easily carried out compared to the management of stacked baled waste which requires the application of plastic sheeting at the end of the working day.

The EIS non-technical summary proposed that the landfill facility would have two working faces, one for baled waste (30m by 30m) and one for unbaled waste (40m by 40m). However, the existing licence allows only one working face at the landfill. This limit remains under Condition 5.5.1(a) of the RD. In addition, Condition 5.5.1(b) of the RD sets out specific limits for the dimensions of the landfill's sole working face. I

can find no additional critical information in any of the historical documents related to this matter.

f) Waste Placement

The licensee discusses in detail the relative advantages and disadvantages of placing baled and unbaled wastes. It is my view that there is no one critical difference between placement of baled versus unbaled waste that provides an over-riding advantage for baled waste. The placement of unbaled waste may provide some additional challenges for the landfill operator in terms of installation of gas and leachate management infrastructure but these are not new to landfill operators accepting unbaled waste in Ireland and will, in any case, be effectively controlled by Conditions 2 (Management of the Facility), 3 (Facility Infrastructure) and 5 (Facility Operation and Waste Management) of the RD. I can find no additional critical information in any of the historical documents related to this matter.

g) Landfill Gas Formation

While the deposition of unbaled waste may lead to a different approach to the installation of landfill gas collection networks at the facility such infrastructure can be installed with comparative ease in modern, well managed, landfills accepting unbaled waste. Condition 3.15 of the RD has been amended to reflect modern requirements for installation and management of landfill gas infrastructure. I can find no additional critical information in any of the historical documents related to this matter.

h) Nuisance

The EIS set out the measures envisaged at the time to control windblown litter, scavenging birds, fly and vermin infestation, odour, noise and dust. It is suggested in the EIS that the deposition of baled waste may present some benefits over unbaled waste.

The case is made in the licensee's submission that the prevention of litter blow is the first and most effective step in litter management at a landfill facility and refers to its own achievements regarding diversion of dry recyclables (a litter source) from residual waste sent to landfill. However, it is also accepted by the licensee that waste in baled form can reduce the potential for litter arising as the waste is being deposited. Reference is made to the fact that Arthurstown landfill, which accepts only baled waste, has, as a consequence, no need for litter netting. The licensee points out that the Bottlehill facility has litter nets installed at the cell perimeter to capture all wind blown litter. Nonetheless, the licensee is also proposing the additional use of 'close-in' netting, which will be deployed in and around the landfill working face to capture escaping litter when unbaled waste is being deposited.

It is proposed to amend Condition 7.3 of the current licence, which provides for control of litter, to include two new subconditions. Condition 7.3.3 of the RD provides for the use of mobile litter netting systems in close proximity to the landfill working face, while Condition 7.3.7 requires the development of procedures for operation of the facility during adverse wind conditions.

The pre-treatment requirement for all waste prior to delivery to the facility will reduce the amount of biodegradable waste requiring deposition, which will in turn reduce the presence of food sources for scavenging birds, vermin and flies. In addition, the speedy compaction and covering of unbaled waste by steel wheeled compactors, which is required by condition 5.5.1(c) of the RD, will also reduce the risk of such

nuisance. All existing controls for scavenging birds (condition 7.6) and fly infestation (condition 11.5) as set out in of the current licence will remain in force in the RD.

With regard specifically to odour nuisance, most odour complaints arise due to lack of proper management of waste (e.g. poor compaction, covering and gas collection, etc.). Measures were proposed in the EIS for control of odour. These measures are similar to those proposed for control of nuisances such as litter and scavenging birds. The application of the new BMW diversion targets and the requirement to pre-treat all waste prior to landfill will reduce the biodegradable fraction of the waste arriving at the facility, which in turn will reduce the risk of odour generation and nuisance.

In addition, Condition 3.15 of the RD has been amended to reflect modern requirements regarding installation and management of landfill gas infrastructure. Consequently, passive landfill gas management will not be permitted at the site, a measure which will reduce the risk of odour nuisance. All other landfill gas infrastructural, management and monitoring requirements, as set out in the current licence, will remain in force in the RD and will be unchanged by the acceptance of unbaled waste only. Notwithstanding this, Condition 7.8 of the RD sets out new detailed requirements regarding odour control and monitoring, with a specific requirement to develop an Odour Management Plan.

In relation to noise, the licensee proposes that suitable delivery vehicles will be able to bring the unbaled waste directly to the working face of the landfill rather than, as had been first envisaged, having the waste transferred to site-hauling vehicles at the marshalling yard prior to haulage to the landfill working face. The elimination of this 'double-handling' of waste at the marshalling yard will result in a reduction in site vehicle movements and associated noise levels. Mitigation measures proposed in the EIS for control of noise and dust will still apply.

Overall, all relevant controls for nuisance and nuisance monitoring remain unchanged in Conditions 7 and 8.13 of the RD, respectively. The matter of nuisance was raised in the oral hearing report but did not offer anything critical that would alter my position. I can find no additional critical information in any of the other historical documents related to this matter.

i) Fire Risk

It is contended by the licensee in their submission that the incidence of fires at modern landfills is a rare, if ever occurring, event. However, it is also accepted that the risk of fire exists and must be prevented by good compaction of waste by a landfill compactor, which reduces oxygen supply to waste.

Waste compaction by steel wheeled compactors is required by condition 5.5.1(c) of the RD. The deposition of predominantly unbaled waste will not, by itself, increase the risk of fire at the landfill. I can find no additional critical information in any of the historical documents related to this matter.

j) Density of Waste Body

It is pointed out by the licensee that maximising the density of waste as deposited has numerous advantages relating to stability, settlement, landscaping, fire control, vermin and nuisance control. It is stated that the degree of density achievable with compaction of unbaled waste by modern compactors at the landfill face cannot be achieved with waste bales. An example is provided of the landfilling practices at Glasgow City Council's municipal landfill facility where bales of waste were broken prior to landfill so that effective compaction and waste densities could be achieved.

Glasgow City Council has now apparently abandoned the acceptance of waste in baled form at their facility.

Unbaled waste may have different settlement characteristics to baled waste and the process can be difficult to predict. Therefore, effective compaction to achieve maximum waste densities as soon as possible is required. This will be an advantage with respect to the placement of the final capping layer and landscaping.

It is apparent from the oral hearing report that it was originally intended to accept 40% unbaled waste and 60% baled waste at the facility. I consider that the acceptance of such a mixed waste form would contribute to differential waste settlement given that the waste types have different compaction characteristics. This in turn could lead to stability issues at the facility. Therefore, the acceptance of predominantly unbaled waste will, post compaction, lead to the formation of a more uniformly dense waste body than would otherwise have been achievable with a more equal mixture of baled and unbaled waste. In this regard, the licensee's position is accepted. I note again that compaction of deposited waste by steel wheeled compactors is required by condition 5.5.1(c) of the RD. I can find no additional critical information in any of the other historical documents related to this matter.

k) Leachate Generation and Surface Water Management

The landfilling of predominantly unbaled waste will have no impact on the rate or amount of leachate generated in the waste body as the rate of degradation of waste in a landfill is determined mainly by the temperature and moisture content of the waste mass rather than whether it is baled or unbaled. All existing licence requirements regarding leachate management infrastructure remain in force in the RD. I can find no additional critical information in any of the other historical documents related to this matter.

l) Surface Water Management

The management of surface water at the site will not be affected by the acceptance and deposition of primarily unbaled waste and I can find no additional critical information in any of the historical documents related to this matter.

m) Groundwater

The oral hearing report referred to the local 'hydrologically sensitive environment' in which the landfill is located with the inference being that the landfilling of baled waste rather than unbaled waste posed less of a risk to groundwater.

The deposition of pre-treated unbaled waste will not introduce a greater risk to groundwater than already exists and that has already been assessed in the EIS and accounted for by way of relevant controls in the RD. I can find no additional critical information in any of the other historical documents related to this matter.

n) Other Matters

The acceptance of unbaled waste will not introduce any additional risk to the hen harrier population over and above those already outlined and discussed in the application, EIS and inspectors report. All relevant controls in the existing licence regarding ecological protection (condition 5.12) remain unchanged in the RD.

The acceptance of unbaled waste at the facility will not have a visual impact on the locality that has not already been assessed in the EIS.

Regarding the phasing of landfill operations and the closure and aftercare of the facility, there is nothing to suggest that the landfilling of unbaled waste will affect any of the related operational or closure/aftercare plans.

In the oral hearing report, it is stated that if the landfill is to operate within (as applied at the time) 'current waste management requirements' the nature of the waste accepted at the landfill:

- Should be 'truly residual, preferably in baled form with a significantly reducing organic content', and that
- Only baled waste 'that has been fully pre-treated for maximum separation and recovery, particularly of the organic fraction' should be accepted at the facility.

The original licence application and EIS set out a proposal for a facility for disposal of pre-treated residual waste which was designed to accept both baled and unbaled waste. The requirement to pre-treat all waste according to modern EPA guidance (2009) and the proposed application of BMW acceptance limits will result in a significantly reducing organic fraction of the waste accepted for landfill at the facility. Moreover, current waste management practice does not specifically require deposit of baled waste alone. The Agency has not applied this requirement to any other waste licence since the granting of the Bottlehill licence. I can find no additional critical information in any of the other historical documents related to these matters.

o) Proposed Amendments to Licence Conditions

Regarding its request to amend the various provisions in the current licence to remove the reference to baled waste, the licensee addresses each requirement in turn. These are assessed and responded to below.

- (i) The licensee proposes that the licence introduction be amended to remove the reference to waste in baled form.

Recommendation:

Remove all reference to baled waste in the introduction to the RD.

- (ii) The licensee proposes an amendment to the explanation in 'Part I Activities Licensed' of the licence for activity Class 13 to provide for temporary storage of baled and unbaled waste in the marshalling yard and also to remove the reference to the use of sealed containers.

Recommendation:

Continue to permit waste disposal activities Classes 4, 5 and 13 of the Third Schedule of the Waste Management Acts 1996 to 2010. However, it is recommended that the explanation provided for Class 13 be amended to read as follows:

'This activity is limited to the temporary storage on-site of unacceptable waste in the waste quarantine area prior to transport to another site'.

It is not proposed to permit temporary storage of waste at the waste marshalling yard.

- (iii) The licensee proposes that condition 1.5.3 be amended to remove requirement to accepted only baled waste for disposal at the facility.

Recommendation:

Amend Condition 1.5.3 to read as follows in the RD:

'Only residual waste shall be accepted for disposal at the facility'.

- (iv) The licensee proposes that condition 5.5.1 be amended to remove the reference to baled waste in relation to:
- The operation of a single working face as required by condition 5.5.1(a), and
 - The requirement, as set out by condition 5.5.1(b), for the licensee to submit to the Agency a report as to the size of the landfill working face.

Recommendation:

Amend condition 5.5.1(a) to read as follows in the RD:

'Only one working face shall exist at the landfill at any one time for the deposit of residual waste other than the deposit of cover or restoration materials'.

Amend condition 5.5.1(b) to read as follows in the RD:

'The working face of the landfill shall be no more than 25 metres long and 25 wide (i.e. $625m^2$ surface area), no more than 2.5 metres in height after compaction, and have a slope no greater than 1 in 3'.

- (v) The licensee proposes the amendment of 'Schedule G: Content of the Annual Report' of the licence to remove reference to waste in baled form.

Recommendation:

Amend relevant provision of Schedule G to read as follows in the PD:

'...Quantity and composition of waste received, disposed of and recovered during the reporting period and each previous year.'

Third Party Submission

One third party submission was received by the Agency from solicitors Noonan Linehan Carroll Coffey on behalf of John O'Riordan and the Bottlehill Environmental Alliance. The following are items included in the submission:

a) Baled Waste

It is requested that the Agency reject the licensee's request to have the licence amended by removal of reference to baled waste. In support of this request, a number of excerpts from the oral hearing report are provided which outline the Chairman's reservations in relation to the matter at the time. It is contended in the submission that the Chairman's concerns are as relevant today as they were when first made. In light of this contention, each concern raised is addressed in turn below:

(i) Nature and Volumes of Waste to be Accepted

The Chairman stated that the *'The most significant issue with respect to the proposed waste licence is the nature of the waste and its volumes'*.

Response:

The facility has the capability to accept both baled and unbaled waste. Prior to arriving at the facility, all waste will require pre-treatment according to the EPA's

guidance document. Therefore, whether the waste is baled or unbaled will not affect the 'nature' of the waste arriving at the facility. As discussed above, it is my view that the acceptance of waste in unbaled form will have no bearing on the projected amounts of waste that will eventually be consigned to the facility.

(ii) Definition of Residual Waste

The Chairman outlined his difficulty in obtaining a clear meaning or implication for the term 'residual waste' at the time of the oral hearing.

Response:

The term 'residual waste' is now defined in the RD. In addition, the Agency issued guidance on the matter in 2009. All waste must undergo treatment as per the Agency guidance document before despatch to the facility. This requirement provides certainty and consistency as to what the terms 'treatment' and 'residual waste' actually mean and entail.

(iii) Materials Recovery Facilities (MRF)

The Chairman referred to the fact that, while it was the intention of Cork County Council at the time of original application to route all waste through '*treatment stations or MRFs*', no MRFs were in place at that time.

Response:

Cork County Council do not now intend to provide a network of MRFs but to utilise privately operated MRFs, which are currently available.

(iv) Number of Landfill Working faces

The Chairman made a statement that '*having effectively two operating faces (baled and loose waste) in the landfill throughout the life of the site is neither good operating practice nor good risk management*'

Response:

This matter has already been dealt with above.

(v) Organic Waste Volumes

The Chairman raised concerns about the volumes of organic waste that will be deposited over the lifetime of the facility. He predicted at the time '*that there is likely to be as much organic waste dumped per year at the end of the life of the landfill as at the beginning, notwithstanding the legislative requirement to separate out organic waste and to reduce the volumes landfilled in the medium term – the proportions of organic waste may be improving but the absolute tonnage amounts are predicted to remain relatively stable*'.

He continued to state that, as a consequence of the above that '*there will be ongoing, long term leachate and gas management problems. The long term sustainability of such a waste management solution at this site remains in question*'.

Response:

It is now national policy to reduce the amounts of biodegradable waste being deposited at landfills. The conditions proposed in the RD that limit the acceptance of

biodegradable municipal waste will contribute to implementation of that policy. The benefits of this restriction include a reduction in landfill gas generation, odour nuisance potential and leachate generation. In addition, Condition 3.15 of the RD has been amended to reflect modern requirements for installation and management of landfill gas infrastructure and all existing licence requirements regarding leachate management infrastructure remain in force in the RD.

(vi) Nature of Pre-treatment of Waste

The Chairman made the following statement in the oral hearing report:

'if this site is to operate under a licence consistent with current waste management practice, it should only be baled waste and also truly 'treated' (i.e. fully/practically separated waste) having passed through an appropriate facility'

Response:

This matter has already been dealt with under 'Other Matters' above.

(vii) Acceptance of Baled Waste Only

The contention is made in the submission that the Chairman's opinion regarding the necessity to allow acceptance of baled waste only was accepted by the Agency and that this acceptance was reflected in conditions 1.5.3 and 5.5 of the current licence. These conditions set out some requirements regarding the acceptance and deposit of baled waste only.

Response:

This contention is not accepted. The Agency included these conditions in the Bottlehill Landfill licence as their inclusion was requested by the licensee in the licence application. Subsequent to the granting of the current licence for Bottlehill Landfill, the Agency has not applied similar conditions to any other landfill licence.

b) Treatment Facilities and Waste Acceptance

As the use of a Council provided MRF is now to be replaced with privately operated treatment facilities and due to what is described as *'the additional challenge posed by the multitude of separate facilities sending waste to the site'*, it is requested that the Agency be more specific in relation to the licence conditions regarding waste treatment, characterisation and acceptance over and above the requirements set out in the current licence in condition 5.3.

Response:

As proposed in the RD, all waste must first undergo treatment as per the Agency guidance document before landfilling at the facility. The RD has a range of new conditions covering such matters as prohibition of certain waste types, treatment of waste and limits on biodegradable waste. A new Condition 5.3 sets out updated requirements for the development of waste acceptance procedures, which will require the prior agreement of the Agency before implementation. Condition 1.6 on the limitation of biodegradable municipal waste means the character of municipal waste accepted will be quantified. Conditions 5.3 and 5.4 set out detailed requirements in the RD with regard to inspections of all waste shipments, both at the point of arrival at the facility and at the point of deposition at the working face. Overall, it is considered that the RD fully addresses third party concerns on the matter.

c) Leachate Treatment

Reference is made to the current licence and to the requirement to obtain confirmation from Cork County Council about the suitability and effectiveness of the Mallow Waste Water Treatment Plant to accept and treat leachate from the Bottlehill facility. It is requested that evidence should now be provided in relation to the WWTP's ability to ensure '*compliance with the requisite standards currently and into the future*' when the plant commences treatment of the leachate.

Response:

The RD retains this requirement by way of Condition 5.10.7. Among the provisions of this condition is the requirement for Cork County Council to demonstrate to the Agency that the Mallow WWTP is capable of treating the leachate to appropriate standards and, should this not be possible, that an alternative WWTP that is capable of treating the leachate is identified.

Moreover, it is proposed to include a new condition in the RD. Condition 5.10.8 of the RD requires the licensee to examine the feasibility of providing onsite treatment of the leachate generated at the site.

d) Hydrological and Hydrometeorological Study and Catchment Delineation

An excerpt is provided from the oral hearing report which outlines the Chairman's concerns regarding the hydrological assessment in the EIS and the need to confirm the hydrological and hydrometeorological regime at the site with '*full delineation of the surface and groundwater catchments involved*'. It is requested that this work now be done, or confirmed as the case may be, and it is considered by the third party that the licence review presents an opportunity to do so.

Response:

Notwithstanding the concerns of the Chairman, the current licence did not set a requirement to carry out any of the specific work referred to above. The Chairman in fact accepts (in the same excerpt) that a 'worst case' approach was taken with the design of the site and that the site could be engineered to contain and manage the relevant emissions. The facility has been designed to meet the requirements of the Landfill Directive and it is my view that this 'worst case' approach suitably protects surface water and groundwater in the vicinity of the facility. Consequently, it is not proposed to insert any additional requirements in the RD regarding the hydrological and hydrometeorological regime at the site.

Cross Office Consultation

The OEE inspector for the site, Caoimhin Nolan, was consulted during the review process. OEE inspector Kealan Reynolds was also consulted. Both inspectors have extensive experience and knowledge of matters related to landfill operation and waste licence enforcement. Advice in relation to litter control, operations in high winds, bird control, landfill settlement, landfill gas infrastructure and management and general licence conditions was taken and incorporated into the RD.

Recommended Decision

We have considered all of the relevant technical documents and all of the documentation governing the grounds for the review of this licence. Overall, we cannot find any technical reason as to why the predominant acceptance of baled waste

should be an environmentally superior option over the general acceptance of unbaled waste. Operational practices may change on site but at no greater risk to the environment. BAT will continue to be applied and the change from baled to unbaled waste will not require any engineering or infrastructure changes.

The carrying on of the activities in accordance with the conditions of the RD will not cause environmental pollution and will ensure compliance with the Landfill Directive. The new/amended conditions will not affect the existing level of regulation of emissions from the facility. We recommend that the Agency grant a revised licence subject to the conditions set out in the RD and for the reasons as drafted.

Signed



Michael Owens/Caroline Murphy
Inspectors

Procedural Note

In the event that no objections are received to the Proposed Decision on the application, a licence will be granted in accordance with Section 43(1) of the Waste Management Acts 1996-2010.



Headquarters,
P.O. Box 3000,
Johnstown Castle Estate
County Wexford, Ireland

PROPOSED DECISION FOR A WASTE LICENCE
REVIEW
LANDFILL FOR NON-HAZARDOUS WASTE

Waste Licence Register Number:	W0161-02
Licensee:	Cork County Council
Location of Facility:	Bottlehill, Toreen South, Coom (Hudson), Coom (Fitzgerald), Glashaboy North, Bottlehill, County Cork.

INTRODUCTION

This introduction is not part of the licence and does not purport to be a legal interpretation of the licence.

This licence is for the operation of a landfill at Bottlehill, County Cork. The landfill which will have a footprint of approximately 45.8 hectares in area will accept **pre-treated residual** municipal waste in eight distinct phases, each consisting of 5 cells. The landfill will accept a total of approximately 5.3 million tonnes of waste for disposal over its lifespan. After filling each phase will be temporarily capped and seeded and final capping will be installed within 24 months. The landfilled area will be surrounded by a buffer zone of forestry. There is a clay borrow area within the site boundary which will be used to extract clay for site development, cover and restoration purposes.

Infrastructure for the active collection of landfill gas will be installed along with the final capping system. Waste will be delivered to the site in appropriate, **covered**, heavy commercial vehicles and the landfill will not generally be used by members of the public. There is no provision for a civic waste facility at the site. Some inert material will be accepted for the purposes of landfill cover and restoration. Other infrastructure includes a lining system, leachate collection and management infrastructure, an administration building, laboratory facilities, weighbridges, site security, car parking facilities, etc. The anticipated lifespan of the facility is 20 years.

This review of the licence is primarily concerned with ensuring that the landfill is operating in compliance with all relevant requirements of the Landfill Directive (1999/31/EC) including the need to divert biodegradable municipal waste from landfill. Waste must be treated before disposal in the landfill and treatment must now reflect pre-treatment technical guidelines published in 2009 by the Agency - *Municipal Solid Waste - Pre-treatment and Residuals Management: An EPA Technical Guidance Document*. Limits on the acceptance of biodegradable municipal waste are introduced. There is a consequential need, set out in the licence, to update and revise waste acceptance procedures, maintain records to demonstrate compliance with new requirements and provide periodic reports on waste disposal and recovery at the facility. As waste acceptance has not commenced at time of review, new and updated conditions are proposed for waste, odour, landfill gas and leachate management arrangements.

The licensee must manage and operate the facility so as to ensure that the activities do not cause environmental pollution. The licensee is required to carry out regular environmental monitoring and submit all monitoring results, and a wide range of reports on the operation and management of the facility to the Agency.

The licence sets out in detail the conditions under which Cork County Council will operate and manage this facility.

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DECISION & REASONS FOR THE DECISION

Reasons for the Decision

The Environmental Protection Agency is satisfied, on the basis of the information available, that subject to compliance with the conditions of this licence, any emissions from the activity will comply with, and will not contravene any of, the requirements of Section 40(4) of the Waste Management Acts 1996 to 2010.

In reaching this decision the Environmental Protection Agency has considered the documentation received from the licensee, all submissions received from other parties and the report of its inspector.

Part I Activities Licensed

In pursuance of the powers conferred on it by the Waste Management Acts 1996 to 2010, the Environmental Protection Agency under Section 46(8)(a) of the said Acts hereby grants this Waste Licence to Cork County Council, County Hall, Cork to carry on the waste activities listed below at Tooreen South, Coom (Hudson), Coom (Fitzgerald), Glashaboy North, Bottlehill, County Cork subject to twelve conditions, with the reasons therefor and the associated schedules attached thereto set out in the licence.

Licensed Waste Disposal Activities, in accordance with the Third Schedule of the Waste Management Acts 1996 to 2010

Class 4.	<p>Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons:</p> <p>This activity is limited to the collection and storage of leachate prior to tankering offsite for treatment; the collection and discharge of stormwater to and from surface water lagoons, via oil interceptors and settlement tanks; the collection and discharge of clean surface water runoff via surface water lagoons.</p>
Class 5.	<p>Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.</p> <p>This is the principal activity. This activity is limited to the following: the construction of the landfill in distinct phases consisting of cells with a lining system consisting of HDPE and low permeability clay; landfilling into these phases; capping of these cells and phases, once filled; landfill gas collection, flaring and utilisation; and landscaping and restoration of the site.</p>
Class 13.	<p>Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.</p> <p>This activity is limited to the temporary storage on-site of unacceptable waste in the waste quarantine area prior to transport to another site.</p>

Licensed Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Acts 1996 to 2010

Class 4.	<p>Recycling or reclamation of other inorganic materials:</p> <p>This activity is limited to the use for the purposes of daily landfill cover and construction works of inert material and material reclaimed from construction and demolition waste.</p>
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INTERPRETATION

All terms in this licence should be interpreted in accordance with the definitions in the Waste Management Acts, 1996 to 2010 (the Acts), unless otherwise defined in this section.

Adequate lighting	20 lux measured at ground level.
Agreement	Agreement in writing.
Annually	At approximately twelve monthly intervals.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
Application	The application by the licensee for this waste licence.
Appropriate facility	A waste management facility, duly authorised under relevant law and technically suitable.
Biodegradable waste	Waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste and paper and cardboard.
Biodegradable municipal waste (BMW)	The biodegradable component of municipal waste, not including bio-stabilised residual waste. Biodegradable municipal waste is typically composed of food and garden waste, wood, paper, cardboard and textiles.
Bio-stabilised residual waste	Residual biodegradable municipal waste that has been treated to achieve an EPA-approved biodegradability stability standard (as defined in this licence) prior to landfilling or alternative use agreed.
Characterisation of waste	The sampling and analysis of waste to determine, amongst other things, its nature and composition, including the proportions of biodegradable, recyclable and other materials in the waste.
Classification of waste	The classification of waste as inert, non-hazardous or hazardous for the purpose of article 4 of Council Directive (1999/31/EC) on the landfill of waste.
Coding of waste	The allocation of a European Waste Catalogue/Hazardous Waste List code and a concise/standardised description of the waste, including information on the source of the waste, e.g. municipal, industrial, construction and demolition etc.
Condition	A condition of this licence.
Construction and Demolition Waste	All wastes which arise from construction, renovation and demolition activities.
Containment boom	A boom which can contain spillages and prevent them from entering drains or watercourses.
Cover material	Bricks, crushed concrete, tarmac, earth, soil, sub-soil, stone, rock or other similar natural materials; or other cover material the use of which has been agreed by the Agency.
Daily Cover	Is the term used to describe material spread (about 150mm if soil cover is used) over deposited waste at the end of each day. Synthetic materials may also be used. Its objective is to minimise odour, the amount of litter generated and to control flies and access to the waste by birds and vermin. Where soils are used for daily cover, it is recommended that they be removed at the start of

	the day and subsequently reused as much as possible
Daytime	8.00 a.m. to 10.00 p.m.
Documentation	Any report, record, result, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.
Drawing	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
Emergency	Those occurrences defined in Condition 9.4
Emission Limits	Those limits, including concentration limits and deposition levels established in <i>Schedule C: Emission Limits</i> , of this licence.
E.I.S.	Environmental Impact Statement
European Waste Catalogue (EWC)	A harmonised, non-exhaustive list of wastes drawn up by the European Commission and published as Commission Decision 94/3/EC and any subsequent amendment published in the Official Journal of the European Community.
Hours of Operation	The hours during which the facility is authorised to be operational. The hours of operation of a facility are usually longer than the hours of waste acceptance to facilitate preparatory and completion works, such as the removal and placing of daily cover.
Hours of Waste Acceptance	The hours during which the facility is authorised to accept waste.
Inert waste	Waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.
Intermediate Cover	Refers to placement of material (minimum 300mm if soil is used) for a period of time prior to restoration or prior to further disposal of waste.
Landfill	Refers to the area of the facility where the waste is disposed of by placement on the ground or on other waste.
Landfill Gas	Gases generated from the landfilled waste.
Licence	A Waste Licence issued in accordance with the Act.
Licensee	Cork County Council.
List I/II Organics	Substances classified pursuant to EC Directives 76/464/EEC and 80/68/EEC.
Liquid Waste	Any waste in liquid form and containing less than 2% dry matter. Any waste tankered to the facility.
Maintain	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
Monthly	A minimum of 12 times per year, at approximately monthly intervals.
Municipal solid	Household waste as well as commercial and other waste which, because of

waste (MSW)	its nature or composition, is similar to household waste. Excluding municipal sludges and effluents.
Night-time	10.00 p.m. to 8.00 a.m.
OMP	Odour Management Plan.
Recyclable Materials	Those waste types, such as cardboard, batteries, gas cylinders, etc, which may be recycled
Residual waste	The fraction of collected waste remaining after a treatment or diversion step, which generally requires further treatment or disposal.
Quarterly	At approximately three monthly intervals.
Sample(s)	Unless the context of this licence indicates to the contrary, samples shall include measurements by electronic instruments.
SCADA system	Supervisory Control and Data Acquisition system
Sludge	The accumulation of solids resulting from chemical coagulation, flocculation and/or sedimentation after water or wastewater treatment with greater than 2% dry matter.
Specified Emissions	Those emissions listed in <i>Schedule C: Emission Limits</i> of this licence.
Specified Engineering Works	Those engineering works listed in <i>Schedule B: Specified Engineering Works</i> of this licence.
Trigger Level	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
Treatment/pre-treatment	In relation to waste, any manual, thermal, physical, chemical or biological processes that change the characteristics of waste in order to reduce its volume or hazardous nature or facilitate its handling, disposal or recovery.
EPA Working Day	Refers to the following hours; 9.00 a.m. to 5.30 p.m. Monday to Friday inclusive.
Working Face	The area of the site in which waste other than cover material or material for the purposes of the construction of specified engineering works is being deposited.

PART II CONDITIONS

CONDITION 1 SCOPE OF THE LICENCE

- 1.1. Waste activities at the facility shall be restricted to those listed and described in Part I: Activities Licensed and authorised by this licence.
- 1.2. For the purposes of this licence, the facility is the areas of land outlined in red on Drawing No. 0013011/01/502 entitled 'Site Plan' of the application. Any reference in this licence to "facility" shall mean the area thus outlined in red.
- 1.3. This licence is for the purposes of waste licensing under the Waste Management Acts 1996 to 2010 only and nothing in this licence shall be construed as negating the licensee's statutory obligations or requirements under any other enactments or regulations.
- 1.4. Municipal Waste, Commercial Waste and Industrial Waste may be disposed of at the facility subject to the maximum quantities and other constraints listed in *Schedule A: Waste Acceptance*, of this licence.
- 1.5. Waste Acceptance
 - 1.5.1 Whole used tyres (other than bicycle tyres and tyres with an outside diameter greater than 1400mm) shall not be disposed of at the facility. Shredded tyres shall not be disposed of at the facility.
 - 1.5.2 No hazardous waste, liquid waste or sludges shall be disposed of at the facility.
 - 1.5.3 **Only residual waste shall be accepted for disposal at the facility.**
 - 1.5.4 **No waste which in the conditions of the landfill, is explosive, corrosive, oxidising, highly flammable or flammable as defined in EU Council Directive 91/689/EEC shall be accepted at the landfill.**
 - 1.5.5 Gypsum wastes shall not be placed in any landfill cell accepting biodegradable waste.
 - 1.5.6 **The dilution or mixture of waste solely in order to fulfil relevant waste acceptance criteria established under Condition 5.3 is prohibited.**
- 1.6 Waste Treatment
 - 1.6.1 **Only waste that has been subject to treatment shall be accepted for disposal at the landfill facility.**
 - (i) **Treatment shall reflect published EPA technical guidance as set out in *Municipal Solid Waste – Pre-treatment and Residuals Management*, EPA, 2009.**
 - (ii) **With the agreement of the Agency, this condition shall not apply to:**
 - **inert wastes for which treatment is not technically feasible;**
 - **other waste for which such treatment does not contribute to the objectives of the Landfill Directive as set out in Article 1 of the Directive by reducing the quantity of the waste or the hazards to human health or the environment.**
 - 1.6.2 **Limit on acceptance of biodegradable municipal waste**

Unless otherwise as may be specified by the Agency, the following limits shall apply:

 - (i) **From 1 July 2010 to 30 June 2013 inclusive, a maximum of 47% by weight of municipal solid waste (MSW) accepted for disposal to the body of the landfill shall comprise biodegradable municipal waste (BMW), measured on a calendar year basis or, in 2010 and 2013, part thereof,**
 - (ii) **From 1 July 2013 to 30 June 2016 inclusive, a maximum of 30% by weight of MSW accepted for disposal to the body of the landfill shall comprise BMW, measured on a calendar year basis or, in 2013 and 2016, part thereof, and**

- (iii) From 1 July 2016, a maximum of 15% by weight of MSW accepted for disposal to the body of the landfill shall comprise BMW, measured on a calendar year basis or, in 2016, part thereof.
- 1.6.3 Two or more licensed landfills may seek the agreement of the Agency that collectively they will arrange to comply with Condition 1.6.2. Such agreement may be sought by review of the landfill licence for any facility seeking an increase in the limits set out in Condition 1.6.2, and by technical amendment of any licence for a facility seeking a decrease. Such agreement will be contingent on the net combined acceptance of biodegradable municipal waste at the participating facilities remaining unchanged.
- 1.7 Determination of biodegradable municipal waste content of municipal waste
- 1.7.1 The licensee shall determine the biodegradable municipal waste content of MSW accepted for disposal to the body of the landfill. Waste that has been bio-stabilised in accordance with Condition 1.7.4 shall not be considered BMW.
- 1.7.2 Bio-stabilised residual wastes meeting the requirements of
- Condition 1.7.4, or
 - an alternative protocol as may be agreed by the Agency based on biological treatment process parameters (e.g. validated residence time and temperature parameters at the treatment facility),
- received at the landfill facility may be included in the determination of MSW quantities accepted at the facility for the purposes of Condition 1.7.1.
- 1.7.3 In determining BMW content, the licensee shall use approved calculation factors for BMW content of municipal waste streams published by the EPA. With the agreement of the EPA, alternative factors can be used if they have been determined following waste characterisation carried out in accordance with EPA-approved characterisation protocols including, where appropriate, the use of EPA-approved contractors.
- 1.7.4 In the case of bio-stabilised residual wastes, stabilisation means the reduction of the decomposition properties of the waste to such an extent that offensive odours are minimised and that the respiration activity after four days is <10mg O₂/g DM until 1 January 2016 and <7mg O₂/g DM thereafter.
- 1.7.5 Bio-stabilised residual wastes shall be monitored in accordance with *Schedule D.7: Waste Monitoring*, of this licence.
- 1.7.6 Waste that was accepted to the body of the landfill as stabilised but subsequently is found not to meet the stabilisation standard set out in Condition 1.7.4 shall be notified to the Agency and included in the calculation of BMW accepted to the body of the landfill when assessing compliance with Condition 1.6.2.
- 1.7.7 The licensee is required to maintain on-site as part of their waste acceptance procedures and associated documentation, evidence to demonstrate compliance with Condition 1.6.2, which shall be available for inspection by Agency personnel.
- 1.8 Waste Acceptance Hours and Hours of Operation
- 1.8.1 Waste shall be accepted at the facility for disposal at the landfill only between the hours of 8.30am and 5.45pm Monday to Friday inclusive and 8.30am to 2.45pm on Saturdays.
- 1.8.2 The landfill at the facility shall be operated only during the hours of 8.00am and 6.30pm Monday to Friday inclusive and 8.00am to 3.30pm on Saturdays.
- 1.8.3 Waste shall not be accepted at the landfill on Bank Holidays.
- 1.9 The following shall constitute an incident for the purposes of this licence:
- a) an emergency;
 - b) any emission which does not comply with the requirements of this licence;
 - c) any trigger level specified in this licence which is attained or exceeded; and
 - d) any indication that environmental pollution has, or may have, taken place.

- 1.10 Where the Agency considers that a non-compliance with any condition of this licence has occurred, it may serve a notice on the licensee specifying:
- 1.10.1 That only those wastes as specified, if any, in the notice are to be accepted at the facility after the date set down in the notice;
- 1.10.2 That the licensee shall undertake the works stipulated in the notice, and/or otherwise comply with the requirements of the notice as set down therein, within the time-scale contained in the notice; and
- 1.10.3 That the licensee shall carry out any other requirement specified in the notice.
- When the notice has been complied with, the licensee shall provide written confirmation that the requirements of the notice have been carried out. No waste, other than that which is stipulated in the notice, shall be accepted at the facility until written permission is received from the Agency.
- 1.11 Every plan, programme or proposal submitted to the Agency for its agreement pursuant to any Condition of this licence shall include a proposed timescale for its implementation. The Agency may modify or alter any such plan, programme or proposal in so far as it considers such modification or alteration to be necessary and shall notify the licensee in writing of any such modification or alteration. Every such plan, programme or proposal shall be carried out within the timescale fixed by the Agency but shall not be undertaken without the agreement of the Agency. Every such plan, programme or proposal agreed by the Agency shall be covered by the conditions of this licence

REASON: To clarify the scope of this licence.

CONDITION 2 MANAGEMENT OF THE FACILITY

2.1 Facility Management

- 2.1.1 The licensee shall employ a suitably qualified and experienced facility manager who shall be designated as the person in charge. The facility manager or a nominated, suitably qualified and experienced, deputy shall be present on the facility at all times during its operation.
- 2.1.2 Both the facility manager and deputy, and any replacement manager or deputy, shall successfully complete both the FAS waste management training programme (or equivalent agreed by the Agency) and associated on site assessment appraisal within twelve months of appointment.
- 2.1.3 The licensee shall ensure that personnel performing specifically assigned tasks shall be qualified on the basis of appropriate education, training and experience, as required and shall be aware of the requirements of this licence.

2.2 Management Structure

- 2.2.1 Prior to the commencement of waste activities the licensee shall submit written details of the management structure of the facility to the Agency. Any proposed replacement in the management structure shall be notified in advance in writing to the Agency. Written details of the management structure shall include the following information.
- a) the names of all persons who are to provide the management and supervision of the waste activities authorised by the licence, in particular the name of the facility manager and any nominated deputies;
- b) details of the responsibilities for each individual named under a) above; and
- c) details of the relevant education, training and experience held by each of the persons nominated under a) above.

2.3 Environmental Management System (EMS)

- 2.3.1 The licensee shall establish and maintain an EMS. At least three months prior to the commencement of waste activities, the licensee shall submit to the Agency for its agreement a proposal for a documented Environmental Management System (EMS)

for the facility. Following the agreement of the Agency, the licensee shall establish and maintain such a system. The EMS shall be updated on an annual basis with amendments being submitted to the Agency for its agreement.

2.3.2 The EMS shall include as a minimum the following elements:

2.3.2.1 Schedule of Environmental Objectives and Targets

The licensee shall prepare and maintain a Schedule of Environmental Objectives and Targets. The schedule shall, as a minimum, provide for a review of all operations and processes, including an evaluation of practicable options, for energy and resource efficiency, the use of cleaner technology (including emissions prevention/reduction), and the beneficial recovery/recycling of waste in subsequent landfill engineering operations. The schedule shall include time frames for the achievement of set targets and shall address a five-year period as a minimum. The schedule shall be reviewed annually and amendments thereto notified to the Agency for agreement as part of the Annual Environmental Report (AER).

The licensee shall ensure insofar as practicable that environmental objectives and targets are met according to the stated schedule.

2.3.2.2 Landfill Environmental Management Plan (LEMP)

Within 12 months from the date of grant of this licence, the licensee shall prepare and maintain a LEMP, including a time schedule, for achieving the Environmental Objectives and Targets prepared under Condition 2.3.2.1. The LEMP shall have regard to the guidance set out in the EPA Manual on Landfill Operational Practices. The LEMP shall replace any existing EMP and shall include:

- designation of responsibility for targets;
- the means by which they may be achieved; and
- the time within which they may be achieved.

The LEMP shall be reviewed annually and take into account operational experiences at the facility, the stage of development of the facility (active, closure, aftercare), evolving legislative and BAT requirements, as well as any Agency instructions that may issue. Amendments shall be notified to the Agency for agreement as part of the Annual Environmental Report (AER).

A report on the programme, including the success in meeting agreed targets, shall be prepared and submitted to the Agency as part of the AER. Such reports shall be retained on-site for a period of not less than seven years and shall be available for inspection by authorised persons of the Agency.

2.3.2.3 Corrective Action Procedures

The Corrective Action Procedures shall detail the corrective actions to be taken should any of the procedures detailed in the EMS not be followed.

2.3.2.4 Awareness and Training Programme

The Awareness and Training Programme shall identify training needs, for personnel who work in or have responsibility for the licensed facility.

2.4 Communications Programme

2.4.1 The licensee shall maintain a Communications Programme to ensure that members of the public can obtain information at the facility, at all reasonable times, concerning the environmental performance of the facility.

2.4.2 The licensee shall establish a community liaison committee to facilitate communication between the local community and the licensee on the environmental performance of the facility and on the use of the annual fund required under Condition 12.4.

REASON: To make provision for the proper management of the activity on a planned basis having regard to the desirability of ongoing assessment, recording and reporting of matters affecting the environment.

CONDITION 3 FACILITY INFRASTRUCTURE

- 3.1 The licensee shall establish all infrastructure referred to in this licence prior to the commencement of the licensed activities or as required by the conditions of this licence.
- 3.2 Specified Engineering Works
- 3.2.1 The licensee shall submit proposals for all Specified Engineering Works, as defined in *Schedule B: Specified Engineering Works*, of this licence, to the Agency for its agreement at least two months prior to the intended date of commencement of any such works. No such works shall be carried out without the prior agreement of the Agency.
- 3.2.2 All specified engineering works shall be supervised by a competent person(s) and that person, or persons, shall be present at all times during which relevant works are being undertaken.
- 3.2.3 Following the completion of all specified engineering works, the licensee shall complete a construction quality assurance (CQA) validation. The validation report shall be made available to the Agency on request. The report shall include the following information;
- a) a description of the works;
 - b) as-built drawings of the works;
 - c) records and results of all tests carried out (including failures);
 - d) drawings and sections showing the location of all samples and tests carried out;
 - e) daily record sheets/diary;
 - f) name(s) of contractor(s)/individual(s) responsible for undertaking the specified engineering works;
 - g) name(s) of individual(s) responsible for supervision of works and for quality assurance validation of works;
 - h) records of any problems and the remedial works carried out to resolve those problems; and
 - i) any other information requested in writing by the Agency.
- 3.3 Facility Notice Board
- 3.3.1 The licensee shall provide and maintain a Facility Notice Board on the facility so that it is legible to persons outside the main entrance to the facility. The minimum dimensions of the board shall be 1200 mm by 750 mm.
- 3.3.2 The board shall clearly show:
- a) the name and telephone number of the facility;
 - b) the normal hours of opening;
 - c) the name of the licence holder;
 - d) an emergency out of hours contact telephone number;
 - e) the licence reference number; and
 - f) where environmental information relating to the facility can be obtained.
- 3.4 Facility Security
- 3.4.1 Effective security and stockproof fencing and gates shall be installed and maintained at the facility, as agreed in advance with the Agency.
- 3.4.2 The licensee shall remedy any defect in the gates and/or fencing as follows:
- a) a temporary repair shall be made by the end of the working day; and,
 - b) a repair to the standard of the original gates and/or fencing shall be undertaken within three working days.

- 3.5 Facility Roads and Hardstanding
- Effective site roads shall be provided and maintained to ensure the safe movement of vehicles within the facility.
- 3.6 Facility Office
- 3.6.1 The licensee shall provide and maintain an office at the facility. The office shall be constructed and maintained in a manner suitable for the processing and storing of documentation.
- 3.6.2 The licensee shall provide and maintain a working telephone and a method for electronic transfer of information at the facility.
- 3.7 Waste Inspection and Quarantine Areas
- 3.7.1 A Waste Inspection Area and a Waste Quarantine Area shall be provided and maintained at the facility.
- 3.7.2 These areas shall be constructed and maintained in a manner suitable, and be of a size appropriate, for the inspection of waste and subsequent quarantine if required. The waste inspection area and the waste quarantine area shall be clearly identified and segregated from each other.
- 3.7.3 Drainage from these areas shall be directed to a sump and pumped to a leachate storage lagoon.
- 3.8 Weighbridge
- 3.8.1 The licensee shall provide and maintain two weighbridges at the facility.
- 3.9 Wheel Cleaning
- 3.9.1 The licensee shall establish and maintain a wheelwash/dry wheel shake at the landfill and at the clay borrow area.
- 3.10 Waste Water Treatment Plant
- 3.10.1 **The licensee shall provide and maintain a wastewater treatment plant at the facility. The wastewater treatment plant shall not be used to treat leachate and shall be used for the treatment of domestic wastewater arising on-site only.**
- 3.11 Tank and Drum Storage Areas
- 3.11.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein. **Bunds should be designed having regard to Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (2004).**
- 3.11.2 All tank and drum storage areas shall, as a minimum, be bunded, either locally or remotely, to a volume not less than the greater of the following:
- (a) 110% of the capacity of the largest tank or drum within the bunded area; or
 - (b) 25% of the total volume of substance which could be stored within the bunded area.
- 3.11.3 All drainage from bunded areas shall be diverted for collection and safe disposal.
- 3.11.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.
- 3.11.5 The integrity and water tightness of all the bunds and their resistance to penetration by water or other materials stored therein shall be confirmed by the licensee and shall be reported to the Agency following its installation and prior to its use as a storage area.
- This confirmation shall be repeated at least once every three years thereafter and reported to the Agency on each occasion.
- 3.12 Landfill Lining:
- 3.12.1 **Unless otherwise agreed in writing, the landfill liner shall comprise:**
- (i) a composite liner consisting of a 1.0m layer of compacted soil with a hydraulic conductivity of less than or equal to 1×10^{-9} m/s, overlain by an appropriate geocomposite layer such as bentomat, or equivalent as agreed by the Agency and which in turn is overlain by a 2mm thick high density polyethylene (HDPE) layer;

- (ii) a geotextile protection layer placed over the HDPE layer **(the choice of geotextile is to be proven in advance by an appropriate cylinder test, the results of which are to be submitted as part of the SEW identified in condition 3.2);**
 - (iii) a 500mm thick drainage layer placed over the geotextile layer with a minimum hydraulic conductivity of 1×10^{-3} m/s, of pre-washed, uncrushed, granular, rounded stone (16 - 32mm grain size) incorporating leachate collection drains;
 - (iv) **the lining system on the base of the facility shall be laid to minimum slope of 1:50;**
 - (v) the side walls shall be designed and constructed to achieve an equivalent protection.
- 3.12.2 The liner detailed design and its construction shall be in accordance with the guidelines provided in the Agency's Landfill Manual, Landfill Site Design or as otherwise agreed by the Agency.
- 3.12.3 Existing ground level shall not be lowered/excavated in order to reach formation level.
- 3.13 Buffer Zone
- 3.13.1 A Buffer Zone, in which no waste shall be landfilled shall be provided and maintained within the facility. The Buffer Zone shall be located as shown in green on Drawing No. 0013011/01/502.
- 3.13.2 The existing forestry in the buffer zone shall be managed to maximise biodiversity and habitat areas of importance to the hen harrier and, if necessary enhanced to minimise the views of the facility from the surrounding countryside.
- 3.13.3 The buffer zone should be identified prior to the commencement of tree felling to ensure that the buffer zone is not clear felled. A surveyor should be present during tree felling to ensure that felling does not extend into the buffer zone.
- 3.14 Leachate Management Infrastructure
- 3.14.1 Leachate management infrastructure shall be provided and maintained at the facility as described in Sections 3.7.7, 3.7.8 and 3.7.9 of the Environmental Impact Statement and as shown in drawings referred to therein unless otherwise agreed by the Agency.
- 3.14.2 All structures for the storage and/or treatment of leachate shall be fully enclosed except for inlet piping, outlet piping and gas venting and shall be fully roofed to prevent the ingress of rain.
- 3.15 Landfill Gas Management
- 3.15.1 **Active landfill gas management infrastructure, as appropriate, to include gas flare(s) and interconnecting pipework, shall be provided and ready for operation prior to the commencement of disposal of biodegradable wastes in the landfill. Such infrastructure shall be provided in advance to match the phased filling of the landfill cells.**
- 3.15.2 **The active landfill gas management infrastructure shall include horizontal and vertical gas collection. The horizontal systems shall be installed at lifts no greater than 5 metres, and shall be used during cell filling to, in as far as practicable, provide a negative pressure within the waste body. In addition this shall include provision of a horizontal gas collection system at the top of side slopes to minimise gas emanating from the leachate collection layer.**
- 3.15.3 **All landfill gas extraction well-heads shall be designed to include a regulating valve and monitoring points either side of the said valve. The licensee shall also provide monitoring ports at regular intervals along the gas extraction system.**
- 3.15.4 The landfill gas **flare(s)** shall be of an enclosed type design and the combustion air supply shall be controlled so as to achieve a minimum temperature of 1,000°C and 0.3 seconds retention time at this temperature. The design and operation of the landfill gas **flare(s)** shall be agreed in advance with the Agency.
- 3.15.5 **Flare(s) shall be maintained in accordance with the manufacturer's recommendations. Full records should be available for inspection at the facility.**

The efficiency of the flare unit(s) shall be tested once installed and once every three years thereafter.

- 3.15.6 **In order to minimise release of untreated landfill gas at nuisance forming concentrations/volumes, the landfill gas flare(s) shall be capable of operating with a gas support fuel (e.g., natural gas) to allow effective treatment of landfill gas in the event that the landfill gas itself cannot support combustion. Alternative appropriate treatment techniques may be employed with the written prior approval of the Agency**
- 3.15.7 **The licensee shall ensure that measures are in place to ensure the continuous operation of the required landfill gas management infrastructure at all times.**
- 3.15.8 **The landfill gas flaring shall be designed, managed and operated to ensure the optimum collection and treatment of gas irrespective of the quality of the gas. At least one on-site staff member shall have adequate knowledge and training on the operation of the landfill gas management system and balancing of the gas fields to maximise landfill gas control. The licensee shall ensure that regular (daily/weekly routines) assessment of the operation of the landfill gas management system, e.g., field balancing and control of condensate, is carried out and that records of these assessments are maintained on site.**
- 3.15.9 **For cells accepting biodegradable wastes, the licensee shall arrange for an annual independent assessment of the landfill gas management system. The licensee shall undertake actions, as necessary, having regard to the recommendations of this independent assessment as may be required by the Agency.**
- 3.15.10 All buildings constructed on the facility shall have regard to the guidance given in the Department of Environment 1994 publication "Protection of New Buildings and Occupants from Landfill Gas" and any subsequent revisions.
- 3.15.11 The licensee shall maintain all gas wells, pipework, valves, pumps, flares and other infrastructure that form part of the landfill gas management scheme in a safe and fully operational manner.
- 3.15.12 Perimeter landfill gas monitoring boreholes shall be constructed at 45m intervals around the periphery of the landfill footprint. The construction of the boreholes shall be phased so as to match the phased development of cells.
- 3.15.13 Within twenty four months of the date of commencement of waste activities the licensee shall submit an assessment of whether the utilisation of landfill gas as an energy resource is feasible. If feasible such a system shall be installed within a timeframe agreed by the Agency. This assessment shall include proposals regarding the utilisation of heat energy from this plant.
- 3.16 **Surface Water Management**
- 3.16.1 The surface water management infrastructure described in Section 3.3.11 of the E.I.S. and as illustrated in Drawing No. 0013011/01/536 shall be provided and maintained at the facility unless otherwise agreed by the Agency.
- 3.16.2 The surface water lagoons and surface water management infrastructure shall be constructed and operational prior to the commencement of any other construction works or excavation of the clay borrow area other than necessary accommodation works as may be agreed by the Agency. The licensee shall consider the use of constructed wetlands as part of the surface water management at the facility.
- 3.16.3 The licensee shall ensure protection of the surface water resources within and adjacent to the facility, including the clay borrow area during construction of the surface water management infrastructure and surface water lagoons. During construction works silt fences must be provided in all drainage channels to prevent erosion of soil and sediment into the stream.
- 3.16.4 With regard to the clay borrow area, the mitigation measures outlined in Section D.1.k/H.9 of the response to the Article 14 notice, dated 23/11/01 and Section 3.12.1 of the E.I.S shall be undertaken at the facility.
- 3.16.5 The oil interceptors to be used in the surface water drainage system shall be Class 1 interceptors.

- 3.16.6 All surface water runoff discharging to the surface water lagoons, including that from capped cells and lined but unfilled cells shall discharge to the lagoons via settlement tanks.
- 3.17 Groundwater Management
- 3.17.1 Effective groundwater management infrastructure shall be provided and maintained at the facility during construction, operation, restoration and aftercare of the facility. As a minimum, the infrastructure shall be capable of the following:
- a) the protection of the groundwater resources from pollution by the waste activities; and
 - b) the protection of other infrastructure, such as the liner, from any adverse effects caused by the groundwater.
- 3.18. External Access Road
- Traffic awaiting access to the landfill shall queue along the facility site access road only, and not along the public road.
- 3.19 Telemetry
- A telemetry system shall be installed and maintained at the facility. This system shall include for:
- a) Recording of leachate levels in the lined cells and lagoon.
 - b) Recording of levels in the surface water lagoon and flows to the perimeter streams.
 - c) Quality of the surface water at the inlet to and outlet from the surface water lagoons.
 - d) Permanent gas monitoring system to be installed in the site office at the facility. All landfill gas monitoring equipment, other than permanent monitoring systems within buildings, shall be certified as being intrinsically safe.
- 3.20 Laboratory Facilities
- Laboratory facilities as described in Section 3.3.6 of the E.I.S. shall be installed at the facility.
- 3.21 Replacement of Infrastructure
- Monitoring infrastructure which is damaged or proves to be unsuitable for its purpose shall be replaced within three months of it being damaged or recognised as being unsuitable.

REASON: To provide appropriate infrastructure for the protection of the environment.

CONDITION 4 RESTORATION AND AFTERCARE

- 4.1. **The licensee shall restore the facility and the clay borrow area on a phased basis. For cells accepting biodegradable wastes, future cell development/phasing plans shall have regard to the following timeframes:**
- (i) **Completed (filled) parts of cells, side slopes and cell interfaces shall be capped (temporary capping system) within 15 months of the commencement of waste disposal in that cell/sub cell;**
 - (ii) **A settlement period subsequent to (i) above, of up to 24 months prior to the installation of the final capping system for the cell;**
 - (iii) **The permanent capping (final capping system as per Condition 4.3) of cells or sub-cells within 48 months of the commencement of waste disposal in that cell/sub cell.**
- 4.2. **Finished Levels/Profile**
- 4.2.1. **Landscaping of the facility shall incorporate, as appropriate, the recommendations and mitigation measures outlined in Section 4.5.3 of the EIS. Landscaping works shall take cognisance of the planting season. Where appropriate, the proposed**

- planting scheme shall investigate opportunities for the planting of heather typical of the heathland communities found in the Nagle Mountains. A **suitably qualified** botanist shall be consulted on the matter.
- 4.2.2. **Unless otherwise agreed by the Agency, the finished (post settlement restored) profile of the landfill shall as shown in Drawing No. 0013011/01/523 (Malin).**
- 4.2.3. **Completed areas of the landfill shall be profiled so that no depressions exist in which water may accumulate. Any depressions arising after profiling shall be rectified by the emplacement of suitable capping or restoration materials.**
- 4.2.4. **Final contours and landscaping should be such that the finished slopes of the facility are structurally stable, resistant to erosion, and protective of pollution control and monitoring infrastructure.**
- 4.3. **Final Capping**
- 4.3.1. **Unless otherwise agreed by the Agency, the final capping shall consist of the following:**
- a) top soil (150 -300mm);
 - b) subsoils, such that total thickness of top soil and subsoils is at least 1m;
 - c) drainage layer of 0.5m thickness having a minimum hydraulic conductivity of 1×10^{-4} m/s, or equivalent geosynthetic drainage layer;
 - d) compacted mineral layer of a minimum 0.6m thickness with a permeability of less than 1×10^{-9} m/s or a geosynthetic material (e.g. GCL) or similar that provides equivalent protection; and
 - e) gas collection layer of natural material (minimum 0.3m) or a geosynthetic layer.
- 4.4. **Closure, Restoration, Aftercare and Management Plan (CRAMP)**
- 4.4.1. **Within 18 months of commencement of waste activities at the facility, licensee shall prepare for agreement by the Agency, a fully detailed and costed plan for the closure, restoration and long-term aftercare of the site or part thereof. This plan shall have regard to the commitments given in Section 3.10 of the EIS for Licence Register W0161-01 (as may be varied herein, or otherwise amended as notified in the AER and approved in writing by the Agency).**
- 4.4.2. **The plan shall be maintained and reviewed annually and proposed amendments thereto notified to the Agency for agreement as part of the AER. No amendments may be implemented without the prior agreement of the Agency.**
- 4.5. **The CRAMP shall include, as a minimum, the following:**
- 4.5.1. **A scope statement for the plan.**
 - 4.5.2. **The criteria, including those specified in this licence, which define the successful closure and restoration of the facility or part thereof, and which ensure minimum impact to the environment.**
 - 4.5.3. **A programme to achieve the stated criteria.**
 - 4.5.4. **Where relevant, a test programme to demonstrate the successful implementation of the plan.**
 - 4.5.5. **Details of the long-term supervision, monitoring, control, maintenance and reporting requirements for the restored facility.**
 - 4.5.6. **Details of the costings for the plan and the financial provisions to underwrite those costs.**
- 4.6. **A final validation report to include a certificate of completion for the CRAMP, for all or part of the site as necessary shall be submitted to the Agency within three months of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment.**

- 4.7. No material or object that is incompatible with the proposed restoration of the facility shall be present within one metre of the final soil surface levels.
- 4.8. Where tree planting is to be carried out above waste-filled areas, a synthetic barrier shall be used to augment the clay cap. Combined topsoil and subsoil depths shall be a minimum of 1m.
- 4.9. Soil Storage
All soils shall be stored to preserve the soil structure for future use.

REASON: To provide for the restoration of the facility

CONDITION 5 FACILITY OPERATION AND WASTE MANAGEMENT

- 5.1 Wastes shall not be deposited in any cell or part of the landfill without the prior agreement of the Agency.
- 5.2 Inert material from the clay borrow area and that excavated during the development of the facility may be used for the restoration of the facility.
- 5.3 **Within one month of the date of grant of this licence, the licensee shall submit to the Agency for its agreement updated written procedures for the acceptance and handling of all wastes. These procedures shall include details of the treatment of all waste to be carried out in advance of acceptance at the facility and shall also include methods for the characterisation, classification and coding of waste. The procedures shall have regard to the EU Decision (2003/33/EC) on establishing the criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC on the landfill of waste.**

The waste acceptance procedures established under this condition shall provide:-

- For the checking of waste documentation on receipt of waste in the waste reception area;
 - For non pre-cleared customers, for the visual inspection and testing of waste in the waste inspection area pending acceptance/rejection;
 - For the visual inspection of waste when deposited at the working face;
 - For the keeping for two months of any samples associated with on-site verification sampling of waste accepted at the facility.
- 5.4 All wastes shall be checked at the working face. Any wastes deemed unsuitable for acceptance at the facility and/or in contravention of this licence shall be removed from the facility at the earliest possible time. Temporary storage of such wastes shall be in a designated Waste Quarantine Area. Waste shall be stored under appropriate conditions in the quarantine area to avoid putrefaction, odour generation, the attraction of vermin and any other nuisance or objectionable condition.
- 5.5 Working Face
- 5.5.1 Unless the prior agreement of the Agency is given, the following shall apply at the landfill:
- a) Only one working face shall exist at the landfill at any one time for the deposit of residual waste other than the deposit of cover or restoration materials;
 - b) The working face of the landfill shall be no more than 25 metres long and 25 wide (i.e. 625m^2 surface area), no more than 2.5 metres in height after compaction, and have a slope no greater than 1 in 3.
 - c) All waste deposited at the working face shall be compacted, using a steel wheeled compactor, and covered as soon as is practicable and at any rate prior to the end of the working day.
 - d) All waste deposited at the working face shall be covered with suitable material as soon as is practicable and at any rate prior to the end of the working day.

- 5.6 Daily and Intermediate Cover
- 5.6.1 Any cover material at any location within the facility which is eroded, washed off or otherwise removed shall be replaced by the end of the working day.
- 5.6.2 **Biostabilised residual waste shall only be used as landfill cover where it has been stabilised in accordance with Condition 1.7.4 (or meets the requirements of an alternative protocol as may be agreed under Condition 1.7.2), complies with any requirements of the Department of Agriculture, Fisheries and Food relating to the management of animal by-products and has been agreed in advance with the Agency.**
- 5.7 Operational Controls
- 5.7.1 Unless otherwise agreed by the Agency the landfill shall be filled in accordance with the eight phase sequence outlined in Section 3.4 of the E.I.S.
- 5.7.2 All large hollow objects and other large articles deposited at the facility shall be crushed, broken up, flattened or otherwise treated.
- 5.7.3 Wastes once deposited and covered shall not be excavated, disturbed or otherwise picked over unless otherwise agreed in advance with the Agency.
- 5.7.4 Scavenging shall not be permitted at the facility.
- 5.7.5 Gates shall be locked shut when the facility is unsupervised.
- 5.7.6 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- 5.7.7 Fuels shall be stored only at appropriately bunded locations on the facility.
- 5.7.8 All tanks and drums shall be labelled to clearly indicate their contents.
- 5.7.9 No smoking shall be allowed on the facility other than in the administration building.
- 5.8 Inert Waste
- Inert waste accepted at the facility from outside the facility shall comply with the standards established in *Schedule F: Criteria for the Acceptance of Inert Waste*, of this licence. Analysis of such waste shall be in accordance with the requirements of that Schedule.
- 5.9 Off-site Disposal and Recovery
- 5.9.1 Waste sent off-site for recovery or disposal shall be conveyed only by a waste contractor agreed by the Agency.
- 5.9.2 All waste transferred from the facility shall be transferred only to an appropriate facility agreed by the Agency.
- 5.9.3 All wastes removed off-site for recovery or disposal shall be transported from the facility to the consignee in a manner which will not adversely affect the environment.
- 5.10 Leachate Management
- 5.10.1 Leachate levels in the waste shall not exceed a level of 1m over the top of the liner at the base of the landfill.
- 5.10.2 The level of leachate in the pump sumps, in the filled waste and in the leachate holding tanks shall be monitored continuously by a SCADA system which shall automatically activate leachate pumps to maintain leachate head at the required level.
- 5.10.3 The SCADA system shall be linked to an automatic level alarm in the administration building, and at another location outside the site when the administration building is unmanned.
- 5.10.4 The frequency of leachate removal/discharge from the leachate storage tanks shall be such that a minimum of 0.75m freeboard shall be maintained in the leachate storage tanks at all times.
- 5.10.5 Leachate stored in the leachate storage tank shall be disposed of by tankering off-site in fully enclosed road tankers.

- 5.10.6 Recirculation of leachate or other contaminated water shall not be undertaken without the prior agreement of the Agency.
- 5.10.7 Prior to the acceptance of waste at the facility the licensee shall submit to the Agency a report confirming that; (a) the necessary works to upgrade the Mallow Wastewater Treatment Plant as indicated in the Art 16 reply dated January 2002 of the application have been carried out and that the Mallow Wastewater Treatment Plant is capable of treating the leachate to appropriate standards, or (b) that a named alternative plant(s) is capable of treating the leachate to appropriate standards.
- 5.10.8 **Notwithstanding the requirements of Condition 5.10 generally and Condition 6.6.2, the licensee shall, within two years of the date of grant of this licence, carry out and submit to the Agency an independently verified economic, technical and environmental assessment of the feasibility of providing onsite treatment of the leachate generated at the facility. The assessment shall consider the provision of treatment during the active, closure and post closure phases. Recommendations shall be implemented according to a schedule as may be agreed with or specified by the Agency.**
- 5.10.9 The licensee shall provide and maintain a backup generator at the facility to cater for failure of the power supply.
- 5.11 Maintenance
- 5.11.1 All treatment/abatement and emission control equipment shall be calibrated and maintained, in accordance with the instructions issued by the manufacturer/supplier or installer. Written records of the calibrations and maintenance shall be made and kept by the licensee.
- 5.11.2 All lagoon structures on the facility shall be inspected and certified fit for purpose every three years by an independent and appropriately qualified chartered engineer.
- 5.11.3 The licensee shall maintain and clearly label and name all sampling and monitoring locations.
- 5.11.4 The wheel-washes shall be inspected on a daily basis and drained as required. Silt, stones and other accumulated material shall be removed as required from the wheel-washes and disposed of at the working face or to a skip.
- 5.12 Ecological Protection
- 5.12.1 The licensee shall, prior to the commencement of construction works at the facility and in consultation with the **National Parks and Wildlife** Section of the Department of Environment, Heritage and Local Government, implement a programme to ensure the ongoing protection of the hen harrier and its *associated habitats including* nesting sites. This programme should include as a minimum:
- (iv) Training of all staff involved in the construction, development and operation of the facility prior to the commencement of their duties, with regard to the hen harrier, its nesting location(s) and measures in place/to be put in place to minimise effects of the development on the species.
 - (v) Identification of the nesting site(s) and a protection zone surrounding the nesting site(s). Any fencing, signage or demarcation used for this purpose should be compatible with the protection of the species.
 - (vi) The implementation of mitigation measures with regard to the hen harrier as proposed in the E.I.S. Section 4.6.2.
- Any relevant authorisation from the **National Parks and Wildlife** Section of the Department of Environment, Heritage and Local Government should be obtained.
- 5.12.2 The licensee shall, prior to the commencement of tree felling consult with the Forest Service of the Department of Agriculture and Food in relation to tree felling. The felling of trees shall be undertaken only outside the breeding season (May - July) for birds unless with the prior consent of the Forest Service of the Department of Agriculture and Food and the **National Parks and Wildlife** Section of the Department of Environment, Heritage and Local Government. The nesting sites for owls and birds of prey shall be fully protected.

REASON: To provide for appropriate operation of the facility to ensure protection of the environment.

CONDITION 6 EMISSIONS

- 6.1. No specified emission from the facility shall exceed the emission limit values set out in *Schedule C: Emission Limits* of this licence. There shall be no other emissions of environmental significance.
- 6.2. The licensee shall ensure that the activities shall be carried out in a manner such that emissions do not result in significant impairment of, or significant interference with the environment beyond the facility boundary.
- 6.3. Landfill Gas
- 6.3.1. The following are the trigger levels for landfill gas emissions from the facility measured in any service duct or manhole on, at or immediately adjacent to the facility and/or at any other point located outside the body of the waste:
- Methane, greater than or equal to 1.0% v/v; and
 - Carbon dioxide, greater than or equal to 1.5% v/v.
- 6.3.2. The concentration limits for emissions to atmosphere specified in this licence shall be achieved without the introduction of dilution air and shall be based on gas volumes under standard conditions of :-
- in the case of landfill gas flare:
- Temperature 273 K, pressure 101.3 kPa, dry gas at 3% oxygen.
- 6.3.3. Emission limits for landfill gas combustion product emissions to atmosphere in this licence shall be interpreted in the following way:-
- 6.3.3.1. Continuous monitoring
- No 24 hour mean value shall exceed the emission limit value.
 - 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.
 - No 30 minute mean value shall exceed twice the emission limit value.
- 6.3.3.2. Non-Continuous Monitoring
- For any parameter where, due to sampling/analytical limitations, a 30 minute samples is inappropriate, a suitable sampling period should be employed and the value obtained therein shall not exceed the emission limit value.
 - For all other parameters, no 30 minute mean value shall exceed the emission limit value.
 - For flow, no hourly or daily mean value shall exceed the emission limit value.
- 6.4. Emissions to Surface Water
- 6.4.1 No raw leachate, treated leachate or contaminated water shall be discharged to surface water.
- 6.4.2 No substance shall be discharged in a manner, or at a concentration which, following initial dilution causes tainting of fish or shellfish.
- 6.4.3 **Prior to the acceptance of waste at the facility the licensee** shall submit to the Agency for its agreement proposals for the monitoring of water entering surface water retention lagoons. These proposals shall include the criteria/trigger levels which will determine when the outlet from these ponds shall be closed. Such monitoring shall, as a minimum, include conductivity, pH and TOC and shall be carried out on the inlet to the stormwater/surface water retention lagoons.

- 6.5. Emissions to Groundwater
- 6.5.1 There shall be no direct emissions to groundwater.
- 6.5.2 Prior to the acceptance of waste at the facility, the licensee shall submit to the Agency for its agreement, groundwater trigger levels in accordance with the requirements of Directive 1999/31/EC (ammonia, TOC and Chloride as a minimum).
- 6.6. Disposal of Leachate
- 6.6.1. No leachate shall be discharged to surface water.
- 6.6.2. All leachate or contaminated water tankered from the facility shall be transported for treatment to Mallow Waste Water Treatment Plant, or another treatment plant as agreed by the Agency.

REASON: To control emissions from the facility and provide for the protection of the environment.

CONDITION 7 NUISANCE CONTROL

- 7.1 The licensee shall ensure that vermin, birds, flies, mud, dust, litter and odours do not give rise to nuisance at the facility or in the immediate area of the facility. Any method used by the licensee to control any such nuisance shall not cause environmental pollution or contravene any national statutory protection granted in respect of protected species.
- 7.2 The road network in the vicinity of the facility shall be kept free from any debris caused by vehicles entering or leaving the facility. Any such debris or deposited materials shall be removed without delay.
- 7.3 Litter Control
- 7.3.1 The measures and infrastructure as described in Section 3.14.4 of the E.I.S., as **appropriate**, shall be applied to control litter at the facility.
- 7.3.2 Litter fencing shall be installed and maintained around the perimeter of the active tipping area prior to the disposal of any waste in any cell.
- 7.3.3 **The licensee shall utilise mobile litter netting in close proximity to the landfill working face.**
- 7.3.4 All litter control infrastructure shall be inspected on a daily basis. The licensee shall remedy any defect in the litter netting as follows:
- a) a temporary repair shall be made by the end of the working day; and,
- b) a repair to the standard of the original netting shall be undertaken within three working days.
- All litter netting shall be kept tidy and litter trapped in the netting shall be removed as soon as practicable.**
- 7.3.5 All loose litter or other waste, placed on or in the vicinity of the facility, other than in accordance with the requirements of this licences, shall be removed, subject to the agreement of the landowners, immediately and in any event by 10.00am of the next working day after such waste is discovered.
- 7.3.6 The licensee shall ensure that all vehicles delivering waste to and removing waste and materials from the facility are appropriately covered.
- 7.3.7 **Prior to the commencement of waste activities the licensee shall submit to the Agency for its agreement procedures for the operation of the facility in adverse wind conditions.**
- 7.4 Dust Control
- 7.4.1 In dry weather, site roads and any other areas used by vehicles shall be sprayed with water as and when required to minimise airborne dust nuisance.
- 7.5 Prior to exiting the landfill or the clay borrow area, all vehicles shall use the wheelwash.

7.6 Bird Control

Birds shall be prevented from gathering on and feeding at the facility. The use of birds of prey for this purpose is prohibited unless agreed in advance by the Agency and the **National Parks and Wildlife** Section of the Department of the Environment, Heritage and Local Government. The techniques to be used for bird scaring shall be in place on the facility at least two weeks prior to any waste being disposed of and shall **be implemented** every day, from before dawn to after dark, until the waste activities cease and all the waste is capped to the written satisfaction of the Agency. The licensee shall ensure that the Bird Control Programme does not impact on the use of the lands adjoining the facility by the natural bird population. The use of gas operated bird scaring devices is prohibited at the facility.

7.7 Noise/Disturbance

The licensee shall ensure the following:

- That low sound level plant is used on site,
- That speed restrictions as agreed by the Agency are imposed on internal site roads,
- That all heavy machinery used on-site is fitted with acoustic panels in the engine bays and acoustic mufflers (exhaust silencers).

7.8 Odour Control & Monitoring

7.8.1 Within six months of the date of grant of this licence, the licensee shall submit to the Agency for agreement, an Odour Management Plan (OMP) for the facility.

7.8.2 The OMP referred to in 7.8.1 shall include measures to control potential sources of odour nuisance, including inter alia, provisions regarding:

- (i) Requirements of relevant conditions of this licence;**
- (ii) Adequate resources and training on-site to provide for the maintenance, monitoring and operation of the landfill gas extraction system;**
- (iii) Acceptance and management of odorous waste deliveries;**
- (iv) Arrangements for the bi-annual preparation of an independent assessment and report on surface VOC emissions at the facility following completion of waste acceptance in any cell/sub-cell;**
- (v) Use of sacrificial gas extraction systems; phased capping of the waste body; and an interim capping system at inter-cell boundaries;**
- (vi) Working face/active cell sizing and covering;**
- (vii) Landfill gas collection:- locations of infrastructure including access/haul roads, well design and density, monitoring, condensate management, field balancing, flare/combustion plant operation;**
- (viii) Identification of fugitive sources of landfill gas emissions (e.g. from leachate management infrastructure and/or from side slopes);**
- (ix) Monitoring: - VOC surface emissions from capped areas, odour checks off-and on-site, receipt and evaluation/verification of odour complaints received.**

7.8.3 To meet the requirements of the OMP, the licensee shall carry out a monthly review of control measures in place at the facility and maintain findings in a monthly report. This review shall include:

- (i) Consideration of odour complaints received during period (including details and nature of complaints, times and weather conditions, any unusual circumstances, problems, etc.);**
- (ii) Review of any monitoring, including ambient odour monitoring in accordance with Schedule D.8 Ambient Odour Monitoring, of this licence carried out (including investigation of complaints and actions taken where relevant);**
- (iii) An update on the existing landfill gas control infrastructure (including operational status, number of wells & vents connected and unconnected to the landfill gas collection system, quantity of gas collected and flared/utilised, estimated quantity of landfill gas being produced, details of any problems with equipment during period);**
- (iv) Details of any remedial/corrective actions taken, where relevant, including actions taken on foot of recommendations from previous report; and**
- (v) Recommendations.**

- The licensee shall maintain these reports on site and forward them to the Agency on request.
- 7.8.4 The OMP shall be reviewed annually and any updates/amendments submitted to the Agency as part of the Annual Environmental Report.
- 7.8.5 In relation to surface emissions from the waste body and identified features, the following shall constitute a trigger level:
- (i) VOC greater than or equal to 50ppmv as methane average over capped area; or
 - (ii) VOC greater than or equal to 100ppmv as methane instantaneous reading on open surfaces within the landfill footprint; or
 - (iii) VOC greater than or equal to 500ppmv as methane around all identified features.
- 7.8.6 Leachate holding tanks/lagoons shall be covered, and head gases vented to treatment as may be required by the Agency.
- 7.8.7 All odorous or odour-forming wastes shall be covered as soon as practicable and in any case at the end of the working day.
- 7.8.8 Where it is proposed to take biological sludges at the facility, these must be subject to appropriate pre-treatment in advance of acceptance at the facility.
- 7.8.9 When siting and operating landfill gas infrastructure, regard shall be had to the potential for, and mitigation of, odour nuisance.

REASON: To provide for the control of nuisances

CONDITION 8 MONITORING

- 8.1. The licensee shall carry out such monitoring and at such locations and frequencies as set out in *Schedule D: Monitoring* of this licence and as specified in this licence. Unless otherwise specified by this licence, all environmental monitoring shall commence no later than two months after the date of grant of this licence. Where monitoring infrastructure needs to be installed environmental monitoring shall commence no later than two months after its installation.
- 8.2. The licensee shall amend the frequency, locations, methods and scope of monitoring as required by this licence only upon the written instruction of the Agency and shall provide such information concerning such amendments as may be requested in writing by the Agency. Such alterations shall be carried out within any timescale nominated by the Agency.
- 8.3. Monitoring and analysis equipment shall be operated and maintained in accordance with the manufacturers' instructions (if any) so that all monitoring results accurately reflect any emission, discharge or environmental parameter.
- 8.4. The licensee shall provide safe and permanent access to all on-site sampling and monitoring points and to off-site points as required by the Agency.
- 8.5. Prior to the commencement of waste activities the following information shall be submitted to the Agency for its agreement: the names, qualifications and a summary of the relevant experience of all persons that will carry out all sampling and monitoring as required by this licence and who carry out the interpretation of the results of such sampling and monitoring. Any proposed changes to the above shall be submitted to the Agency for its agreement.
- 8.6. Prior to the commencement of waste activities the licensee shall submit to the Agency for its agreement appropriately scaled drawing(s) showing all the monitoring locations that are stipulated in this licence. The drawing shall include the twelve figure National Grid Reference for the various monitoring points.
- 8.7. Noise Monitoring
- 8.7.1. The licensee shall carry out noise monitoring as detailed in Schedule D, Tables D.1 and D.4.

- 8.8. Topographical Survey
- 8.8.1. A topographical survey shall be **carried out** annually and shall include a measurement of the available void space. The survey shall be in accordance with any written instructions issued by the Agency.
- 8.9. Biological Assessment
- 8.9.1 A biological assessment of the surface water quality at monitoring locations as indicated in Table D.1.1 shall be undertaken **every two years**. This assessment shall use appropriate biological methods such as the EPA Q-rating system for the assessment of rivers and streams. The location of monitoring points shall be agreed by the Agency.
- 8.10. Ecological Assessment
- 8.10.1. Ecological monitoring of the entire site, as referred to in Section 3.15.2 of the E.I.S. shall be carried out **annually**. The scope of the monitoring and the method of carrying out the monitoring should be decided in consultation with the **National Parks and Wildlife** Section of the Department of Environment, Heritage and Local Government and agreed in advance with the Agency. The ecological monitoring shall include as a minimum an assessment of:
- the status of the hen harrier population within the forestry site;
 - the effect of the construction, development and operation of the facility on the hen harrier population;
 - mitigation measures put in place with regard to the protection of the hen harrier;
 - the habitat being used by the hen harrier
 - the status of any protected species in the vicinity of the site.
- 8.10.2. A report on the ecological monitoring required above shall be submitted to the Agency each year as part of the Annual Environmental Report.
- 8.11. Archaeological Assessment
- Prior to the development of any undisturbed area, the advice of the Heritage Section of the Department of Environment, Heritage and Local Government shall be sought. On completion of such development a report of the results of any archaeological monitoring shall be submitted to the Heritage Section of the Department of Environment, Heritage and Local Government and to the Agency.
- 8.12. Stability Assessment
- 8.12.1. The licensee shall carry out an annual slope stability assessment of the side slopes of the facility.
- 8.13. Nuisance Monitoring
- The licensee shall, at a minimum of one-week intervals, inspect the facility and its immediate surrounds for nuisances caused by litter, vermin, birds, flies, mud, dust and odours. Written records shall be made of all inspections and any actions taken as a result of these inspections.
- 8.14 The licensee shall maintain a Data Management System for collation, archiving, assessing and electronically presenting the environmental monitoring data generated as a result of this licence.
- 8.15 The licensee shall, subject to the continuing agreement of the landowners, complete annual representative monitoring of groundwater quality of private wells in accordance with the programme agreed with the Agency. Any changes to the scope of this monitoring programme shall be agreed in advance with the Agency.
- 8.16 **The licensee shall ensure that any waste acceptance testing required by this licence shall be carried out by competent laboratories in accordance with CEN-standards. If CEN standards are not available, ISO, national or international standards or alternative methods shall apply with the agreement of the Agency.**

REASON: To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions

CONDITION 9 CONTINGENCY ARRANGEMENTS

- 9.1. In the event of an incident the licensee shall immediately:
- a) identify the date, time and place of the incident;
 - b) carry out an immediate investigation to identify the nature, source and cause of the incident and any emission arising therefrom;
 - c) isolate the source of any such emission;
 - d) evaluate the environmental pollution, if any, caused by the incident;
 - e) identify and execute measures to minimise the emissions/malfunction and the effects thereof;
 - f) provide a proposal to the Agency for its agreement within one month of the incident occurring to:
 - i) identify and put in place measures to avoid reoccurrence of the incident; and
 - ii) identify and put in place any other appropriate remedial action.
- 9.2. The licensee shall maintain a written Emergency Response Procedure (ERP). The ERP shall address any emergency situations which may originate on the facility and shall include provision for minimising the effects of any emergency on the environment. This shall include a risk assessment to determine the requirements at the facility for fire fighting and fire water retention facilities. The Fire Authority shall be consulted by the licensee during this assessment. **The Emergency Response Procedure shall be reviewed annually and updated as necessary.**
- 9.3. The licensee shall have in storage an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage at the facility. Once used the absorbent material shall be disposed of at an appropriate facility.
- 9.4. Emergencies
- 9.4.1. All significant spillages occurring at the facility shall be treated as an emergency and immediately cleaned up and dealt with so as to alleviate their effects.
 - 9.4.2. No waste shall be burnt within the boundaries of the facility. A fire at the facility shall be treated as an emergency and immediate action shall be taken to extinguish it and notify the appropriate authorities.
 - 9.4.3. In the event that monitoring of local wells indicates that the facility is having a significant adverse effect on the quantity and/or quality of the water supply this shall be treated as an emergency and the licensee shall provide an alternative supply of water to those affected.
 - 9.4.4. In the event that monitoring of the side slopes of the facility indicate that there may be a risk of slope failure this will be treated as an emergency.
- 9.5. **The licensee shall maintain a documented Accident Prevention Policy, which will address the hazards on-site, particularly in relation to the prevention of accidents with a possible impact on the environment. This procedure shall be reviewed annually and updated as necessary.**

REASON: To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions

CONDITION 10 RECORDS

- 10.1 The licensee shall keep the following documents at the facility office.
- a) the current waste licence relating to the facility;
 - b) the current EMS for the facility;
 - c) the previous year's AER for the facility;
 - d) all written procedures produced by the licensee which relate to the licensed activities; and,

- e) specified engineering works and associated CQA validation documentation.
- 10.2 The licensee shall maintain a written record for each load of waste arriving at the facility. The licensee shall record the following:**
- a) **the date and time;**
the name of the carrier (including if appropriate, the waste carrier registration details);
 - b) **the vehicle registration number;**
 - c) **the trailer, skip or other container unique identification number (where relevant);**
 - d) **the name of the producer(s)/collector(s) of the waste as appropriate;**
the name of the waste facility (if appropriate) from which the load originated including the waste licence or waste permit register number;
 - e) **a description of the waste including the associated EWC/HWL codes;**
 - f) **the quantity of the waste, recorded in tonnes;**
 - g) **details of the treatment(s) to which the waste has been subjected;**
 - h) **the classification and coding of the waste, including whether MSW or otherwise;**
 - i) **whether the waste is for disposal or recovery and if recovery for what purpose;**
 - j) **the name of the person checking the load; and where loads or wastes are removed or rejected, details of the date of occurrence, the types of waste and the facility to which they were removed.**
- 10.3 Written Records**
- The following written records shall be maintained by the licensee:
- a) the types and quantities of waste recovered and disposed of at the facility each year. These records shall include the relevant EWC Codes;
 - b) all training undertaken by facility staff;
 - c) results from all integrity tests of bunds and other structures and any maintenance or remedial work arising from them;
 - d) details of all nuisance inspections; and
 - e) the names and qualifications of all persons who carry out all sampling and monitoring as required by this licence and who carry out the interpretation of the results of such sampling and monitoring.
- 10.4 The licensee shall maintain a written record of all complaints relating to the operation of the facility. Each such record shall give details of the following:**
- a) **date and time of the complaint;**
 - b) **the name of the complainant;**
 - c) **details of the nature of the complaint;**
 - d) **actions taken on foot of the complaint and the results of such actions; and,**
 - e) **the response made to each complainant.**
- 10.5 A written record shall be kept of each consignment of leachate removed from the facility. The record shall include the following:**
- a) **the name of the carrier;**
 - b) **the date and time of removal of leachate from the facility;**
 - c) **the volume of leachate, in cubic metres, removed from the facility on each occasion;**
 - d) **the name and address of the Waste Water Treatment Plant to which the leachate was transported; and**
 - e) **any incidents or spillages of leachate during its removal or transportation.**
- 10.6 A written record shall be kept at the facility of the programme for the control and eradication of vermin and fly infestations at the facility. These records shall include as a minimum the following:**

- a) the date and time during which spraying of insecticide is carried out;
- b) contractor details;
- c) contractor logs and site inspection reports;
- d) details of the rodenticide(s) and insecticide(s) used;
- e) operator training details;
- f) details of any infestations;
- g) mode, frequency, location and quantity of application; and,
- h) measures to contain sprays within the facility boundary.

REASON: To provide for the keeping of proper records of the operation of the facility

CONDITION 11 REPORTS AND NOTIFICATIONS

11.1 Unless otherwise agreed by the Agency, all reports and notifications submitted to the Agency shall:

- a) be sent to the EPA Regional Inspectorate, Inniscarra, Co. Cork;
- b) comprise one original and three copies unless additional copies are required;
- c) be formatted in accordance with any written instruction or guidance issued by the Agency;
- d) include whatever information as is specified in writing by the Agency;
- e) be identified by a unique code, indicate any modification or amendment, and be correctly dated to reflect any such modification or amendment;
- f) be submitted in accordance to the relevant reporting frequencies specified by this licence, such as in *Schedule E: Recording and Reporting to the Agency* of this licence;
- g) be accompanied by a written interpretation setting out their significance in the case of all monitoring data; and
- h) be transferred electronically to the Agency's computer system if required by the Agency.

11.2 In the event of an incident occurring on the facility, the licensee shall:

- a) notify the Agency as soon as practicable and in any case not later than 10.00 a.m. the following working day after the occurrence of any incident;
- b) submit a written record of the incident, including all aspects described in Condition 9.1(a-e), to the Agency as soon as practicable and in any case within five working days after the occurrence of any incident;
- c) in the event of any incident which relates to discharges to surface water, notify the South-Western Regional Fisheries Board as soon as practicable and in any case not later than 10:00 a.m. on the following working day after such an incident; and
- d) Should any further actions be taken as a result of an incident occurring, the licensee shall forward a written report of those actions to the Agency as soon as practicable and no later than ten days after the initiation of those actions.

11.3 Waste Recovery Reports

The licensee shall as part of the Annual Environmental Report for the site submit a report on the contribution by this facility to the achievement of the waste recovery objectives stated in Condition 2.3.2.1 and as otherwise may be stated in National and European Union waste policies and shall, as a minimum, include tonnages of the following:

- (i) **the recovery of construction and demolition waste;**
- (ii) **the recovery of other waste in landfill operations, including restoration;**

(iii) **the recovery of energy through landfill gas combustion.**

11.4 Reports relating to Facility Operations

11.4.1. Leachate Handling Procedures

The licensee shall develop and maintain, prior to the use of the leachate storage lagoon, handling procedures for leachate **at the facility including** removal from the tanks and subsequent transport/discharge to the waste water treatment plant.

11.4.2. Operation in Adverse Weather Conditions

Prior to the commencement of waste activities the licensee shall submit to the Agency for its agreement proposals for the operation of the facility in adverse weather conditions.

11.5 Vermin and Flies

11.5.1. Prior to the commencement of waste activities the licensee shall submit to the Agency for its agreement a proposal for the control and eradication of vermin and fly infestations at the facility. This proposal should include as a minimum, operator training, details on the pesticide(s), rodenticide(s) and insecticide(s) to be used, mode and frequency of application and measures to contain sprays within the facility boundary and the measures as proposed in the E.I.S. Section 4.6.2.2.

11.6 Annual Environmental Report

11.6.1 The licensee shall submit to the Agency, by the 31st March of each year, an AER covering the previous calendar year.

11.6.2 This report, which shall be to the satisfaction of the Agency, shall include as a minimum the information specified in *Schedule G: Annual Environmental Report*, of this licence and shall be prepared in accordance with any relevant guidelines issued by the Agency.

11.7 **The licensee shall provide a written acknowledgement (to carrier/waste contractor) of receipt of each delivery of waste to the facility (for disposal or recovery at the landfill).**

11.8 **The licensee shall, in writing, notify the Agency without delay of any waste received at the facility that does not meet the waste acceptance criteria.**

11.9 **Reporting to demonstrate compliance with diversion targets**

The Licensee shall report to the Agency such data and records, and at such frequency, as may be specified by the Agency in order to demonstrate compliance with the requirements of Condition 1.6.2. From the date of commencement of waste activities, and unless otherwise advised by the Agency, the licensee shall submit quarterly summary reports to the Agency within one week of the end of each calendar quarter on the quantity of MSW and BMW accepted at the landfill during the preceding quarter and on a cumulative basis for the calendar year to date. The report shall detail the tonnage of MSW and BMW accepted and the basis (including all calculation factors) on which the figures have been calculated.

REASON: To provide for proper reports to and notifications to the Agency.

CONDITION 12 CHARGES AND FINANCIAL PROVISIONS

12.1 Agency Charges

12.1.1 The licensee shall pay to the Agency an annual contribution of **€17,859** or such sum as the Agency from time to time determines, towards the cost of monitoring the activity or otherwise in performing any functions in relation to the activity, as the Agency considers necessary for the performance of its functions under the Waste Management Acts, 1996 to 2010. The licensee shall, not later than January 31 of each year, pay to the Agency this amount updated in accordance with changes in the Public Sector

Average Earnings Index from the date of the licence to the renewal date. The updated amount shall be notified to the licensee by the Agency. For 2010, the licensee shall pay a pro rata amount from the date of this licence to 31st December. This amount shall be paid to the Agency within one month of the date of grant of this licence.

- 12.1.2 In the event that the frequency or extent of monitoring or other functions carried out by the Agency needs to be increased the licensee shall contribute such sums as determined by the Agency to defraying its costs.

12.2 Environmental Liabilities

12.2.1 The licensee shall as part of the AER, provide an annual statement as to the measures taken or adopted at the site in relation to the prevention of environmental damage, and the financial provisions in place in relation to the underwriting of costs for remedial actions following anticipated events (including closure) or accidents/incidents, as may be associated with the carrying on of the activity.

12.2.2 The licensee shall arrange for the completion, by an independent and appropriate qualified consultant, of a comprehensive and fully costed Environmental Liabilities Risk Assessment (ELRA) which addresses the liabilities from past and present activities. The assessment shall include those liabilities and costs identified in Condition 4 for execution of the Closure, Restoration and Aftercare and Management Plan. A report on this assessment shall be submitted to the Agency for agreement within six months of date of grant of this licence. The ELRA shall be reviewed as necessary to reflect any significant change on site, and in any case every three years following initial agreement. Review results are to be notified as part of the AER.

12.2.3 As part of the measures identified in Condition 12.2.1, the licensee shall, to the satisfaction of the Agency, make financial provision to cover any liabilities associated with the operation (including closure, restoration and aftercare) of the facility. The amount of indemnity held shall be reviewed and revised as necessary, but at least annually. Proof of renewal or revision of such financial indemnity shall be included in the annual 'Statement of Measures' report identified in Condition 12.2.1.

12.2.4 The licensee shall revise the cost of closure, restoration and aftercare annually and any adjustments shall be reflected in the financial provision made under condition 12.2.3.

12.2.5 The licensee shall have regard to the Environmental Protection Agency Guidance on Environmental Liability Risk Assessment, Decommissioning Management Plans and Financial Provision when implementing Conditions 12.2.2 and 12.2.3 above.

12.2.6 Unless otherwise agreed any revision to **that part of the indemnity dealing with closure, restoration and aftercare liabilities** shall be computed using the following formula:

$$\text{Cost} = (\text{ECOST} \times \text{WPI}) + \text{CiCC}$$

Where:

Cost = Revised restoration and aftercare cost

ECOST = Existing restoration and aftercare cost

WPI = Appropriate Wholesale Price Index [Capital Goods, Building & Construction (i.e. Materials & Wages) Index], as published by the Central Statistics Office, for the year since last closure calculation/revision.

CiCC = Change in compliance costs as a result of change in site conditions, changes in law, regulations, regulatory authority charges, or other significant changes.

12.3 Cost of landfill of waste

In accordance with the provisions of Section 53A of the Waste Management Acts 1996 to 2010, the licensee shall ensure the costs involved in the setting up and operation of the facility, as well as the costs of closure, restoration and after-care (including cost of provision of financial security) for a period of at least 30 years (post closure) shall be covered by the price to be charged for the disposal of waste at the facility. The statement required under Section 53A(5) of said Acts is to be included as part of the AER.

- 12.4 From the date of commencement of waste disposal at the facility the licensee shall provide the sum of one hundred and fifty thousand euro per annum, (index linked) for local environmental and community initiatives for each year that the landfill accepts waste for disposal. A report on the use of this annual fund shall be included in the Annual Environmental Report to the Agency.

REASON: To provide for adequate financing for monitoring and financial provisions for measures to protect the environment.

SCHEDULE A : Waste Acceptance

A.1 Waste Acceptance

Table A.1 Waste Categories and Quantities for disposal

WASTE TYPE	MAXIMUM (TONNES PER ANNUM) YEAR 1 ^{Notes 1 & 2}	MAXIMUM (TONNES PER ANNUM) YEAR 2 ^{Note 1}	MAXIMUM (TONNES PER ANNUM) YEAR 3 ^{Note 1}	MAXIMUM (TONNES PER ANNUM) YEAR 4 and subsequent years ^{Note 1}
Household	92,000	97,000	101,000	105,500
Commercial	61,000	64,000	67,000	70,000
Industrial	29,000	30,000	32,000	33,500
Street Cleaning	7,000	7,500	8,000	8,000
TOTAL	189,000	199,000	208,000	217,000

Note 1: The tonnage for the different waste types accepted for disposal at the facility may be altered, with the prior agreement of the Agency, provided that the total amount of all wastes accepted for disposal at the facility does not exceed the total tonnes per annum.

Note 2: Year 1 refers to the first full year of operation i.e. January to December. For any initial period of operation prior to the first full year a pro rata allowable annual tonnage will apply, with respect to the allowable tonnage for year one, from the date of commencement of waste activities to the 31st of December of that year. Year 2 refers to the second full year of operation and so on.

Table A.1.2 Inert Waste Quantities (acceptable from outside the facility for recovery, restoration works and site development works)

WASTE TYPE	Inert
MAXIMUM quantity for Phase 1 development and restoration works	100,000 m ³ unless otherwise agreed
MAXIMUM quantity for Phase 2 and subsequent phases development and restoration works	75,000 m ³ unless otherwise agreed

Table A.1.3 Total Permitted Landfill Capacity

Total quantity of waste permitted to be placed at the landfill facility (over authorised life of facility)	5,391,600 m ³
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SCHEDULE B : Specified Engineering Works

Development of the facility including preparatory works and lining. Final capping. Installation of Landfill Gas Management Infrastructure. Installation of Leachate Management Infrastructure. Installation of Groundwater Control Infrastructure. Installation of Surface Water Management Infrastructure. Any other works notified in writing by the Agency.
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SCHEDULE C :Emission Limits

C.1 Noise Emissions: (Measured at the Noise Sensitive Locations indicated in *Table D.1.1*).

55	45
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C.2 Landfill Gas Concentration Limits: (Measured in any building on or adjacent to the facility).

20 % LEL (1% v/v)	1.5 % v/v
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C.3 Dust Deposition Limits: (Measured at the monitoring points indicated in *Table D.1.1*).

350

Note 1: 30 day composite sample with the results expressed as mg/m²/day.

C.4 Surface Water Discharge Limits: Measured at the outlets from the surface water lagoons.

35

C.5 Emission Limits Values for Landfill Gas Flare(s)

Emission Point Reference numbers: to be agreed

Location: Landfill Gas Utilisation Plant and/or flare(s)

Volume to be emitted: 3000m³/hr (unless results from modelling suggests otherwise)

Minimum discharge height: 5m (unless results from modelling suggests otherwise)

Nitrogen oxides (NO _x)	150 mg/m ³
CO	50 mg/m ³
Particulates	130 mg/m ³
Total organic carbon (TOC)	10 mg/m ³
Hydrogen Chloride	50 mg/m ³ (at mass flows > 0.3 kg/h)
Hydrogen Fluoride	5 mg/m ³ (at mass flows > 0.05 kg/h)

Note 1: Dry gas referenced to 5% oxygen by volume for utilisation plants and 3% oxygen by volume for flare(s).

SCHEDULE D : Monitoring

Monitoring to be carried out as specified below.

D.1 Monitoring Locations

Monitoring locations shall, unless otherwise stated be those as set out in Table D.1.1 and Drawing No. 0013011/01/507 and Figure 7 of the application.

Table D.1.1 Monitoring Locations

Landfill Gas within Waste and at Boundary	Landfill Gas Flare(s)	Dust Deposition	Noise	Surface Water	Ground Water	Leachate
Stations	Stations	Stations	Stations	Stations	Stations	Stations
Within waste body Note 1(a), Note 8	Flare(s) Note 1(a)	D1	BD1	SW1(a) (upstream) Note 4	MW2 Note 6	Holding tank Note 1(a), Note 1(b)
Boundary locations Note 1(a), Note 9	Utilisation Plant Note 1(a)	D2	BD2	SW1	MW4 Note 6	Holding tank Note 1(a), Note 1(b)
		D3	BD3	SW2	MW11 Note 6	Phase 1 collection sump Note 1(a), Note 1(b)
		D4	BD4	SW3	MW12 Note 7	Phase 1 – Phase 8 Note 1(a), Note 1(b)
		D5	NSL1	SW4	MW 13 Note 7	Each cell and holding tank Note 1(a), Note 1(c)
		D6 Note 3	NSL2	SW5	MW14 Note 7	
		D7 Note 3	NSL3	SW6	MW15 Note 7	
		D8 Note 3	NSL4	SW7	MW16 Note 7	
		D9 Note 3	NSL5 Note 2	KS1 – KS4 Note 5	Note 10	

Note 1(a): Monitoring location reference number(s) to be agreed under Condition 8 of this licence.

Note 1(b): To be monitored for leachate composition as per Table D.5.1.

Note 1(c): Leachate levels to be recorded, in accordance with Table D.5.1.

Note 2: One additional noise monitoring location (NSL5) should be located at the house nearest to the south of the clay borrow area.

Note 3: To be agreed. D6, D7, D8 and D9 are to be located on the north, south, east and west boundaries of the activity boundary surrounding the clay borrow area.

Note 4: To be agreed. SW1(a) to be used as an upstream surface water monitoring location should be situated as far west as possible on the surface water channel that lies on a roughly ENE-WSW axis as shown on Drawing No. 0013011/01/507.

Note 5: Locations for kick samples for the ecological monitoring of surface water.

Note 6: Upgradient groundwater monitoring location.

Note 7: Downgradient groundwater monitoring location.

Note 8: At least 2 per cell, prior to active landfill gas collection.

Note 9: Subject to Condition 3.15

Note 10: Other locations as agreed with the Agency.

D.2. Landfill Gas Plant

Monitoring to be obtained at locations to be agreed by the Agency prior to Installation.

Emission Point Reference No.: to be agreed as per Table D.1.1 and Condition 8.1.

Inlet		
Methane (CH ₄) % v/v	Continuous	Weekly
Carbon dioxide (CO ₂)%v/v	Continuous	Weekly
Oxygen (O ₂) %v/v	Continuous	Weekly
Total Sulphur	Quarterly	Quarterly
Total Chlorine	Quarterly	Quarterly
Total Fluorine	Quarterly	Quarterly
Process Parameters		
Combustion	Continuous	Quarterly
Outlet		
CO	Continuous	Continuous
Nox	Annually	Annually
SO ₂	Annually	Annually
Particulates	Annually	Annually
TA Luft Class I, II, III organics	Not applicable	Annually
TOC	Annually	Not applicable
Hydrochloric acid	Annually	Annually
Hydrogen fluoride	Annually	Annually

Note 1: All monitoring equipment used should be intrinsically safe.

Note 2: Or other methods agreed in advance with the Agency.

Table D.2.2 Landfill Gas Monitoring Parameters, Frequency and Technique

	Monitoring Frequency		
	Gas Boreholes/ Vents/Wells	Site Office	
Methane (CH₄) % v/v	Monthly	Weekly	Infrared analyser/flame ionisation detector
Carbon dioxide (CO₂)%v/v	Monthly	Weekly	Infrared analyser/ flame ionisation detector
Oxygen(O₂) %v/v	Monthly	Weekly	Electrochemical cell
Atmospheric Pressure	Monthly	Weekly	Standard
Temperature	Monthly	Weekly	Standard

Note 1: All monitoring equipment used should be intrinsically safe.

Note 2: Or other methods agreed in advance with the Agency.

D.3 Dust Monitoring

Table D.3.1 Dust Monitoring Frequency and Technique

Dust Deposition	Three times a year ^{Note 2}	Standard Method ^{Note 1}
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Note 1: Standard method VDI2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). A modification (not included in the standard) which 2 methoxy ethanol may be employed to eliminate interference due to algae growth in the gauge.

Note 2: Twice during the period May to September.

D.4 Noise

Table D.4.1 Noise Monitoring Frequency and Technique

L(A)_{EQ} [30 minutes]	Annual	Standard ^{Note 1}
L(A)₁₀ [30 minutes]	Annual	Standard ^{Note 1}
L(A)₉₀ [30 minutes]	Annual	Standard ^{Note 1}
Frequency Analysis(1/3 Octave band analysis)	Annual	Standard ^{Note 1}

Note 1: "International Standards Organisation. ISO 1996. Acoustics - description and Measurement of Environmental noise. Parts 1, 2 and 3."

D.5 Surface Water, Groundwater and LeachateTable D.5.1 *Water and Leachate - Parameters / Frequency*

Visual Inspection/Odour ^{Note 2}	Weekly	Quarterly	Quarterly
Groundwater Level	Not Applicable	Monthly	Not Applicable
Leachate Level	Not Applicable	Not Applicable	(Continuous) SCADA
Ammoniacal Nitrogen	Quarterly	Quarterly	Quarterly
BOD	Quarterly	Not Applicable	Quarterly
COD	Quarterly	Not Applicable	Quarterly
Chloride	Quarterly	Quarterly	Quarterly
Dissolved Oxygen	Quarterly	Quarterly	Not Applicable
Electrical Conductivity	Quarterly	Quarterly	Quarterly
PH	Quarterly	Quarterly	Quarterly
Total Suspended Solids	Quarterly	Not Applicable	Not Applicable
Temperature	Quarterly	Quarterly	Quarterly
Metals and non-metals ^{Note 4}	Annually	Annually	Annually
Cyanide (Total)	Not Applicable	Annually	Annually
Fluoride	Not Applicable	Annually	Annually
List I/II organic substances ^{Note 3}	Note 7	Annually ^{Note 7}	Note 7
Mercury	Annually	Annually	Annually
Sulphate	Annually	Annually	Annually
Total Alkalinity	Annually	Annually	Not applicable
Total P / orthophosphate	Annually	Annually	Annually
Total Oxidised Nitrogen	Annually	Annually	Annually
Total Organic Carbon	Not Applicable	Quarterly	Not Applicable
Residue on evaporation/TDS	Not Applicable	Annually	Not Applicable
Faecal Coliforms ^{Note 5}	Not Applicable	Annually	Not Applicable
Total Coliforms ^{Note 5}	Not Applicable	Annually	Not Applicable
Biological Assessment	Annually ^{Note 6}	Not Applicable	Not Applicable

Note 1: All the analysis shall be carried out by a competent laboratory using standard and internationally accepted procedures.

Note 2: Where there is evident gross contamination of leachate, additional samples should be analysed.

Note 3: Samples screened for the presence of organic compounds using Gas Chromatography / Mass Spectrometry (GC/MS) or other appropriate techniques and using the list I/II Substances from EU Directive 76/464/EEC and 80/68/EEC as a guideline. Recommended analytical techniques include: volatiles (US Environmental Protection Agency method 524 or equivalent), semi-volatiles (US Environmental Protection Agency method 525 or equivalent, and pesticides (US Environmental Protection Agency method 608 or equivalent).

Note 4: Metals and elements to be analysed by AA/ICP should include as a minimum, boron, calcium, chromium (total), copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, cadmium and zinc.

Note 5: In the case where groundwater is used for drinking water, if there is evidence of bacterial contamination, the analysis at up gradient and downgradient monitoring points should include enumeration of total bacteria at 22°C and 37°C and faecal streptococci.

Note 6: Appropriate biological methods (such as EPA Q-Rating System to be used for the assessment of rivers and streams).

Note 7: Once off for List I/II organic substances. SW1(A) and SW3 only for surface water, 1 sample from leachate storage tank to be agreed as per Table D.1.1 and Condition 8.1, 1 leachate sample from active cell. MW4, MW15 and MW16 only for groundwater on annual basis.

D.6 Meteorological Monitoring

Table D.6.1 Meteorological Monitoring:
Upon commencement of waste activities data to be obtained from a location on the facility.

Precipitation Volume	Daily	Standard
Temperature (min/max.)	Daily	Standard
Wind Force and Direction	Daily	Standard
Evaporation	Daily	Standard
Evapotranspiration ^{Note 1}	Daily	Standard
Humidity	Daily	Standard
Atmospheric Pressure ^{Note 1}	Daily	Standard

Note 1: Monitoring frequency for these parameters may be decreased with the agreement of the Agency.

D.7 Waste Monitoring

Bio-stabilised residual waste	Every 500 tonnes from each source ^{note 1}	Respiration activity after 4 days	To be agreed by the Agency
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Note 1: Frequency may be reduced if an alternative protocol is agreed by the Agency under Condition 1.7.2.

D.8 Ambient Odour Monitoring

Odour	Monthly	As agreed with the Agency
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SCHEDULE E : Recording and Reporting to the Agency

Environmental Management System Updates	Annually	One month after the end of the year reported on.
Annual Environment Report (AER)	Annually	Thirteen months from the date of grant of licence and one month after the end of each year thereafter.
Notification of waste loads not meeting waste acceptance criteria	As they occur	As per Condition 11.8
Compliance with waste diversion targets	As required by the Agency	As per Condition 11.9
Record of incidents	As they occur	Within five days of the incident.
Bund, tank and container integrity assessment	Every three years	Six months from the date of grant of licence and one month after end of the three year period being reported on.
Specified Engineering Works reports	As they arise	Prior to the works commencing.
Monitoring of landfill gas	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Surface Water Quality	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of biological quality of surface water	Annually	One month after the end of the year reported on.
Monitoring of Groundwater Quality	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Leachate	Quarterly	Ten days after end of the quarter being reported on.
Meteorological Monitoring	Annually	One month after end of the year being reported on.
Dust Monitoring	Three times a year	Ten days after the period being reported on
Noise Monitoring	Annually	One month after end of the year being reported on.

Note 1: Unless altered at the request of the Agency.

SCHEDULE F : Criteria for the Acceptance of Inert Waste

F.1 Acceptable Waste for Recovery

Only the wastes in Table F.1 are acceptable for recovery at the facility, unless otherwise agreed by the Agency. The inert nature of these wastes shall be verified at a frequency as may be specified by the Agency.

Table F.1 Waste for Recovery

Topsoil	Solid Road Planings, Solid Tarmacadam, Solid Asphalt ^{Note 1}
Subsoil	Brickwork
Stone, Rock and Slate	Natural Sand
Clay	Concrete
Pottery and China	

Note 1: Acceptance subject to the prior written agreement of the Agency.

SCHEDULE G : Content of the Annual Environmental Report

<p>Reporting Period.</p> <p>Waste activities carried out at the facility.</p> <p>Quantity and Composition of waste received, disposed of and recovered during the reporting period and each previous year.</p> <p>Calculated remaining capacity of the facility and year in which final capacity is expected to be reached.</p> <p>Methods of deposition of waste.</p> <p>Summary report on emissions.</p> <p>Summary of results and interpretation of environmental monitoring. This must include the following:</p> <ul style="list-style-type: none"> • Summary of monitoring results for key leachate indicator parameters; • Comparison of monitoring results against baseline data and relevant standards; • Graphical presentation of the trends in the concentration of key leachate indicator parameters; • An assessment and explanation of the significance of the results and trends detected; and • Ecological report. <p>Resource and energy consumption summary.</p> <p>Proposed development and restoration of the facility and timescale of such development.</p> <p>Volume of leachate produced and volume of leachate transported / discharged off-site.</p> <p>Report on development works undertaken during the reporting period, and a timescale for those proposed during the coming year.</p> <p>Report on restoration of completed cells/ phases.</p> <p>Site survey showing existing levels of the facility at the end of the reporting period.</p> <p>Estimated annual and cumulative quantities of landfill gas emitted from the facility.</p> <p>Estimated annual and cumulative quantity of indirect emissions to groundwater.</p> <p>Annual water balance calculation and interpretation.</p> <p>Report on the progress towards achievement of the Environmental Objectives and Targets contained in previous year's report.</p> <p>Schedule of Environmental Objectives and Targets for the forthcoming year.</p> <p>Full title and a written summary of any procedures developed by the licensee in the year which relates to the facility operation.</p> <p>Tank, pipeline and bund testing and inspection report.</p> <p>Reported incidents and Complaints summaries.</p> <p>Review of Nuisance Controls including traffic movements.</p> <p>Updates/Amendments to Odour Management Plan (OMP).</p> <p>Updates to Landfill environmental Management Plan (LEMP).</p> <p>Reports on financial provision made under this licence, management and staffing structure of the facility, and a programme for public information.</p> <p>Report on the use of the annual fund for local environmental and community initiatives.</p> <p>Report on progress in meeting the requirements of the Landfill Directive.</p> <p>Report on training of staff.</p> <p>Statement of compliance of facility with any updates of the relevant Waste Management Plan</p> <p>Statement on the achievement of the waste acceptance and treatment obligations</p> <p>Any other items specified by the Agency.</p>

Signed on behalf of the said Agency
on the XX day of XX, 2010

XXX, Authorised Person